THE EFFECT UPON MENTAL RETARDATION FACILITY EMPLOYEE JOB PERFORMANCE OF DEFINING CLIENT SERVICE JOB DUTIES BY SPECIFIC BEHAVIORAL PARAMETERS AND PROVIDING WRITTEN PERFORMANCE FEEDBACK

BY

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DEDICATION

To my grandmother, Allena Elizabeth Ware,
who created the vision necessary for this
dissertation to become a reality.

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The purpose of the study was to investigate the effects of two organizational behavior management procedures upon the job performance of mental retardation facility employees. Using a multiple baseline design, employee performance on the job duties of token data collection, client grooming, and effective use of reinforcers was assessed after receiving a standard state job description only (baseline phase), after having job duties defined by specific behavioral parameters (Intervention I), and after additionally receiving written performance feedback in the form of publicly posted checklist scores (Intervention II). The checklist scores of all six study participants increased significantly (p. $< .01$) for each dependent variable in both Intervention I and Intervention II, demonstrating that employee performance improved after having job duties defined in specific behavioral parameters and that performance was further enhanced by

receiving written performance feedback. A corollary finding was that lead group instructors (staff members consistently working with the same clients) did not perform significantly better ($p. < .05$) than floaters (staff members working with different clients).

CHAPTER I
INTRODUCTION

Since 1970, state and federal standards for client programming in human service settings (e.g., mental health and mental retardation facilities) have become increasingly more stringent. Furthermore, it has become apparent that effective client programming in mental retardation residential facilities is dependent upon the management of staff behaviors (Christian, 1981b; Dyer, Schwartz, & Luce, 1984; Kazdin, 1973; Miller & Lewin, 1980; Realon, Lewallen, & Wheeler, 1983; Repp & Deitz, 1979). While extensive study has been done regarding effective ways of managing client behavior, not nearly as much attention has been focused on developing ways to manage staff behavior. This is unfortunate because no matter how effective client programming methods may be, their results will be limited by how effectively staff carry them out.

One result of the growing awareness of the need to more effectively manage staff behavior has been the development of a separate management strategy called organizational behavior management (OBM). Frederiksen and Lovett (1980) defined OBM as "the application of the principles of behavioral psychology and the methodologies of behavior modification/applied behavior analysis to the study and control of individual or group behavior within organization settings" (p. 196).

The principles of behavior modification used to modify staff performance are the same as those used to modify client behaviors

(Kazdin, 1975). When using behavioral procedures to change client behaviors, it is important to begin by letting the client know exactly what is expected of him/her. Using the same behavioral procedures to change staff behaviors, it therefore follows that supervisors must let employees know exactly what is expected of them. In a typical job situation, an employee in an educational instructional position is given a broad job description which characteristically lists such duties as instructs students/clients, prepares reports, and attends meetings. The employee is then evaluated at certain intervals, usually annually, on even broader categories such as knowledge of job, initiative, and dependability.

Having been given a copy of the job description and informed of the performance evaluation categories, it is generally assumed that the employee knows exactly what performance is expected of him/her; however, nowhere in this process has it been assured that the employee actually knows what each job duty consists of, how he/she is to perform it, how often it is to be performed, or how it is to be evaluated. Therefore, research was needed to investigate the effect on job performance of defining job duties by specific behavioral parameters. Such behavioral parameters should include a description of the behavior to be performed, the expected level of performance, a description of the method of data collection or verification of performance, and a corresponding evaluation scale for various levels of performance.

Defining job duties by specific behavioral parameters would give employees the means to evaluate their own performance on an on-going basis, but additional study would be needed to test for any added effect of supervisory feedback. Although there has been research on the individual components of defining job duties and performance feedback (Anderson, Crowell, Sponsel, Clarke, & Brence, 1982; Bacon, Fulton, & Malott, 1982; Brown, Willis, & Reid, 1981; Dillon, Kent, & Malott, 1980; Dyer, Schwartz, & Luce, 1984; Maher, 1981), the author was able to find only one study which clearly addressed and assessed the combination of defining job duties in specific behavioral parameters and the differential effect of feedback following the establishment of behaviorally defined job duties (Komaki, Heinzmann, & Lawson, 1980). Further study was therefore needed to examine first the isolated effect of establishing behavioral parameters for job duties and then the added effect of performance feedback.

Purpose and Research Questions

The purpose of this study was to determine the effect upon mental retardation facility employee job performance of defining client service job duties by specific behavioral parameters and providing written performance feedback. Two basic research questions were to be answered:

1. Does defining job duties related to token data collection, client grooming, and effective use of reinforcers in specific behavioral parameters improve job performance over a baseline condition in which employees receive standard state job descriptions only?
2. Does written performance feedback further enhance job performance after job duties are defined in specific behavioral parameters?

Also, a corollary research question was to be answered: Under the same experimental conditions (e.g., defining job duties in specific behavioral parameters, and providing written performance feedback), do lead group instructors (staff members consistently working with the same clients) and floaters (staff members working with different clients) perform differently?

Justification for the Study

Since 1970 both federal and state legislation related to the treatment of handicapped persons have required better services and more accountability (Education for All Handicapped Children Act, 1975; Wyatt v. Stickney, 1971). For example, the Developmental Disabilities Act, passed by the Florida legislature in 1975, has resulted in the development and expansion of state regulations governing licensing and funding of facilities serving the retarded.

Another social and political factor affecting the delivery of human services is a conservative government and an ever-tightening economy, requiring prioritization of funding and proof of effective service delivery. Proof of service delivery in human services necessitates a system wherein units of service can be clearly defined and quantified (Christian, 1981a). The behavioral approach used in this study sought to create such a measurement system and consequently addressed a problem constantly facing administrators responsible for services for mentally retarded and mentally ill persons.

This study therefore dealt with a practical problem, and the results of the investigation demonstrated more effective ways of getting employees to provide better quality services to mentally handicapped persons. The principles of management investigated were basic enough to contribute to the knowledge base of human service settings and the field of staff management in general.

The problem addressed by the corollary question of the study was minor in scope, but had definite bearing on the day-to-day organization of the work unit and on the assignment of employees to specific clients and client-related tasks. Even though OBM must necessarily focus on the larger issues relating to staff management, refinement in the application of behavioral principles to human service settings can only come about by systematically investigating and studying the smaller issues as well. The corollary question was therefore included because it addressed a very practical problem (e.g., the effect on staff performance of fixed client assignments versus variable client assignments).

The three variables used in the study were selected because they represented larger categories of job duties. Token data collection represented the larger job duty of client data collection. Token data had to be recorded by all staff members throughout the day on all clients assigned to them, and the data represented the primary information used to determine client progress. Client grooming represented client care and was selected because the appearance or grooming of a client was important for the self-image of the client, and because it affected the reaction that others (e.g., visitors, administrators, parents) had to the program. Furthermore, it can be argued that the amount of care shown by a staff member in grooming his/her clients serves as an indirect measure of the level of concern for the clients under his/her care. The effective use of reinforcers represented client programming. One of the key ingredients to good programming is the effective use of behavioral procedures. Of all the behavioral procedures used, reinforcement is considered to be the most important because it forces staff to concentrate on appropriate behaviors exhibited by the clients. Effective use of reinforcers should indirectly decrease client maladaptive behaviors and therefore decrease the need for more restrictive and punitive procedures.

Definition of Terms

Behavioral parameters. These are objective, clearly defined indicators of job performance which include a description of expected performance and a scale of various levels of accomplishment of the particular job duty.

Career service employees. These were the employees involved in the present study who worked for the state of Florida and who received the benefits of a legislatively approved position (e.g., retirement, health insurance, appeal rights).

Client. This is a person who receives services funded by the Department of Health and Rehabilitative Services in Florida. In the present study, clients consisted of adults who were dually-diagnosed.

Client accountability system. This is a staff management system which divides clients into small homogeneous groups and assigns specific staff members to each group for accountability purposes.

Client care job duties. These are job duties which relate directly to the physical well-being of the client. The specific client care job duty assessed in this study was "client grooming." The observer-checklist used to evaluate this job duty included 20 items which assessed the cleanliness and physical appearance of the client.

Client data collection job duties. These are job duties which relate to the observing and recording of specific client information. The specific type of data collection assessed in this study was "token data." A 7-item checklist was used to rate members on the accuracy and completeness of recording client token data.

Client programming job duties. These are job duties which relate to the habilitation and training of clients. Essential to the effective training of clients and the remediation of their maladaptive behaviors is the effective application of basic behavioral principles. The behavioral procedure selected for this study was the "effective use of reinforcers." A 5-item checklist was used to assess employees on this variable.

Contract employees. These were the employees involved in the present study who worked for the private, nonprofit organization called the Foundation For Learning.

Developmental Services. This is the program in Florida's Department of Health and Rehabilitative Services which serves mentally retarded persons.

Dual-diagnosis clients. These are persons who have two separate handicapping conditions for which they are receiving services. In this study, dual-diagnosis clients were those individuals whose primary diagnosis was mental retardation but who were also mentally ill.

Floater. This is a direct care staff member who is assigned to a different group of clients each day.

Job performance standard sheet. This is a sheet of information describing the performance expectations, the data collection/verification procedure, and the evaluation criteria for a particular job duty.

Lead group instructor. This is a direct care staff member who is assigned to the same group of clients each day.

Token data collection. This is a staff job duty which involves recording token points on a token card when clients perform specified tasks and activities, recording token point fines on a token fine sheet following the exhibition of specified maladaptive behaviors by clients, and recording items purchased by clients with token points at token exchange times.

Unit Treatment and Rehabilitation Specialist (UTRS). This is a career service employee who works directly with clients and who provides daily care services including habilitative training.

Written performance feedback. This is a form of feedback which consists of giving employees evaluative information on their performance by showing them the checklist score earned after a particular variable is assessed, and then graphing that score and posting it on a public display board.

Delimitations and Limitations

Delimitations and limitations of this study include the following:

1. This study was conducted in a unique human service setting. Even though it was located on the grounds of a Florida state mental health institution, the dual-diagnosis unit served a population which

was mentally retarded as well as mentally ill. Funding therefore came from two separate programs of the Florida Department of Health and Rehabilitative Services (i.e., mental health and developmental services). The dual-diagnosis unit consequently had to meet two different sets of programmatic standards and had to merge two different treatment philosophies. Another unique factor was that the unit utilized a combination of private, contractual employees and state, career service employees. Generalization of results to a particular area of human services (e.g., developmental services or mental health) is therefore limited, as is generalization to state or contract employees as a population.

2. The study participants were not randomly selected. All unit clients (n = 20) were included, and all "day shift" direct care employees (n = 6) were involved.

3. As noted, only those employees on the "day shift" were used for this study. Although employees on the "evening shift" performed similar duties, other variables inevitably created differences. These variables included the following:

   a. There were different shift supervisors on each shift.

   b. No ancillary therapies were in operation on the evening shift so more clients were in the unit during that time.

   c. Hospital support services were curtailed and reduced to only emergency services on the evening shift.

d. Client program activities on each shift changed with regard to specific behaviors taught (e.g., day shift taught dressing skills whereas evening shift taught bathing skills).

e. Employees on the different shifts differed in age and interests (e.g., younger employees with small children generally preferred to work the day shift; employees on the evening shift often also worked another job during the day, or were students at colleges or universities during the day).

f. The project director and other higher-level administrators were not usually present during the evening shift.

4. The three dependent variables used in this study were selected because they represented the major job duty categories of client data collection, client care, and client programming; however, it could not be assumed that the procedures would necessarily generalize to other specific job duties within these categories or to other categories.

5. Although reliability checks were done, the observers were persons who also worked on the unit and who were therefore subject to such errors as the Rosenthal effect (the experimenter may unintentionally modify the subject's behavior through verbal or nonverbal cues, appearance, race, or sex) and other observer/subject effects because of their previous and ongoing relationship to the staff under study. The observers consisted of the coordinator of behavioral services and the unit nurse. Due to budgetary constraints and the

length of the study, trained observers who did not work on the unit could not be obtained.

6. The observer-checklists used to assess each variable were constructed by the author and were not validated or standardized prior to the implementation of this study.

7. The experimental design itself had limitations. Huck, Cormier, and Bounds (1974) cautioned that the use of an across behaviors multiple baseline design may lead to a problem with generalization. More specifically, application of the treatment variable to one behavior may generalize to another behavior. In terms of behavior change, this may be a desirable effect for an administrator, but it may reduce internal validity for the researcher. Other closely related sources of invalidity mentioned by Huck et al. are history, maturation, and regression.

8. There were several threats to ecological validity (environment of the study). These threats included multiple treatment interference, "Hawthorne effect," novelty and disruption effects, experimenter effect, and interaction of history and treatment effects.

Organization of the Study Report

The balance of this study report is organized into four chapters. Presented in Chapter II is a review of relevant literature regarding organizational behavior management, specifying behavioral parameters for job performance, and performance feedback. In Chapter III, the study design and methods to be used are described. Chapter IV contains an analysis of the data obtained in the study. Chapter V provides a summary, conclusions, discussion, and suggestions for future study.

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The literature which is relevant to the study can be generally confined to the years after 1960, with the majority of studies actually being conducted since 1975. The increased frequency of research since 1975 corresponds to the evolution of a movement known as "organizational behavior management (OBM)." To further illustrate this increase, a rough tally done by Frederiksen (1983) showed an increase in the mean number of OBM publications per year from one in 1965-1969 to 28 in 1980-1982.

OBM is described by Riley and Frederiksen (1983) as "a systematic and well documented approach that can reduce cost, improve productivity, and help organizations achieve desired goals" (pp. 3-4). OBM is not intended to be a cure-all, and neither it nor any other available method can create funds where they are lacking or establish social priorities for the treatment of handicapped persons. As shown in the review of the literature, however, OBM has been used quite successfully in improving worker productivity in general, and in the area of human services specifically.

The first major section of this chapter is devoted to defining organizational behavior management, contrasting it to three other behavioral theories, delineating its basic principles and qualities, and giving examples of its use. Next, the focus is on specifying behavioral parameters for job performance, and this is followed by a section related to performance feedback. The review is concluded with the implications of the literature for the present study.

Organizational Behavior Management (OBM)

OBM Defined

Kreitner (1981) defined organizational behavior management (OBM) as "the process of making specific job related behaviors occur more or less often, depending on whether they enhance or hinder organizational goal attainment, through the systematic manipulation of (1) antecedent conditions that serve as cues and (2) immediate pleasing or displeasing consequences" (p. 4). This definition clearly suggests that it is the individual's interaction with his/her environment that affects work performance. Kreitner (1981) pointed out that the usual focus of managing job performance is on either the person (e.g., needs, traits, motives) or on the situation (e.g., goals, supervisor, rewards), but not on the systematic interaction of the two. Believing that both should be considered, he stated, "just as one would not attempt to explain why an aged tree is bent without referring to prevailing winds, we should not try to explain behavior without reference to situational influences" (p. 5).

The person-environment interaction model has been translated to an A-B-C model, which Kreitner described by drawing from the works of B.F. Skinner. "A" refers to the "antecedent," the occasion upon which a response occurs. "B" refers to the "behavior" or response itself. "C" refers to the "consequence," the events (either reinforcing or punishing) which follow the response.

In order to show how OBM differs from other approaches, Kreitner contrasted it with three established behavioral theories: Maslow's need hierarchy, McGregor's Theory X-Theory Y, and Herzberg's two-factor theory of job satisfaction/dissatisfaction. These theories are contrasted separately in the following sections.

OBM in Contrast to Other Behavioral Theories

OBM in contrast to Maslow

According to Abraham Maslow's (1943) theory, people are motivated by a 5-step hierarchy of needs which consists of physiological, safety, love, esteem, and self-actualization needs. While this theory is frequently cited, it presents some problems with regard to application. As Edward E. Lawler (1973) pointed out, "which higher-order needs come into play after the lower ones are satisfied and in which order they will come into play cannot be predicted. If anything, it seems that most people are simultaneously motivated by several of the same level needs" (p. 34).

Kreitner (1981) did not believe that all people are motivated in a stereotyped manner by the same needs. Reinforcers are strictly individualized and therefore consist of a broad array of events, both tangible and intangible, which must be selected and applied contingently on a case-by-case basis. OBM, through its use of reinforcing consequences, therefore allows for the more scientific and predictable motivation and consequation of behavior, particularly individual behavior.

OBM uses behavioral technology which allows the supervisor to determine what an individual employee considers reinforcing at any given time. It therefore gives managers the means to identify specific needs in terms of functional activities or objects and also enables them to rank-order those events in terms of preference and consequent motivational power. The "guess work" in the situation is greatly reduced and the margin for error on the part of the manager is lessened because the employee states the needs directly and in concrete terms. For example, instead of assuming an employee needs esteem, a manager can determine from the employee that he/she would like to be the recipient of a worker-of-the-month award.

OBM in contrast to McGregor

In The Human Side of Enterprise (1960), Douglas McGregor theorized that managers can be categorized by their identification with a set of assumptions referred to as either Theory X or Theory Y. Below are the major assumptions of each theory, as depicted by Hersey and Blanchard (1977). Theory X is characterized by the following assumptions about human nature:

> 1. Work is inherently distasteful to most people.
> 2. Most people are not ambitious, have little desire for responsibility, and prefer to be directed.
> 3. Most people have little capacity for creativity in solving organizational problems.
> 4. Motivation occurs only at the physiological and safety levels.
> 5. Most people must be closely controlled and often coerced to achieve organizational objectives. (p. 55)

Theory Y, on the other hand, is characterized by the following assumptions:

> 1. Work is as natural as play, if the conditions are favorable.

2. Self-control is often indispensable in achieving organizational goals.
3. The capacity for creativity in solving organizational problems is widely distributed in the population.
4. Motivation occurs at the social, esteem, and self-actualization levels, as well as physiological and security levels.
5. People can be self-directed and creative at work if properly motivated. (p. 55)

Kreitner (1981) stated that McGregor, like Maslow, made unwarranted generalizations about the inherent nature of employees. While McGregor was more specific about the importance of antecedents and consequences, he still did not specify precisely how they relate to job performance. OBM is intended to extend McGregor's work by using the A-B-C model to set specific objectives for job behaviors and to follow the employee's performance with meaningful consequences.

According to behavioral principles, a person's opinion regarding something, such as work, is largely determined by past experiences (Kanfer & Goldstein, 1980). If a person has been subjected to a work environment which has been tightly controlled, has not reinforced creativity or allowed participation in problem-solving, and has relied heavily on punishment rather than reinforcement of worker behaviors, it would certainly be logical for that employee to exhibit behaviors which would identify himself/herself with Theory X. The employee would probably not like work and would therefore not exhibit creativity or seek responsibility. This would in turn cause his/her supervisor to view him/her as needing to be controlled and coerced to achieve work objectives.

If, on the other hand, a manager wants an employee to be identified more closely with Theory Y, he/she needs to create a work environment which produces and reinforces those behaviors which are characteristic of Theory Y. For example, if working conditions are pleasant, and employees are reinforced for participation in problem-solving and for exercising self-control, it would not be unusual for them to view work as a positive experience and to behave in a motivated fashion. Managers would consequently adopt a Theory Y point of view in supervising these employees.

In summary, according to OBM, through the use of carefully constructed antecedents and consequences, managers can create any type of work environment they desire. Consequently, they can produce predictably corresponding attitudes and work behaviors in their employees.

OBM in contrast to Herzberg

In his "two-factor theory" of job satisfaction/ dissatisfaction, Frederick Herzberg (1966) concluded that job dissatisfaction relates to the environment in which people work and that job satisfaction relates to the work itself. He labeled the first category of needs as "hygiene factors" and the second set as "motivators." Hersey and Blanchard (1977) listed Herzberg's hygiene factors as (a) policies and administration; (b) supervision; (c) working conditions; (d) interpersonal relations; and (e) money, status, and security. Motivators, on the other hand, included (a) achievement, (b) recognition for accomplishment, (c) challenging work, (d) increased responsibility, and (e) growth and development. Each of these factors operates independently to affect job performance.

Herzberg, like Maslow and McGregor, made sweeping generalizations. Kreitner (1981) pointed out that research has not substantiated Herzberg's assumption that satisfaction is the key to superior job performance. Kreitner saw OBM as interested more in improving job performance than in job satisfaction per se. He used a quote from L. K. Miller (1978) to emphasize his point.

> If the manager, management development expert, trainer, or whoever is attempting to implement organizational change approaches the task from the standpoint of helping the organization achieve its objective, the successful performance of its mission, then the effort can and will be measured in terms of its contribution to the purpose of the organization. If, however, the individual attempting to initiate organizational change approaches the task from the standpoint that the organization owes a certain type of job or satisfaction to anyone, worker or manager, then the effort is likely to fail. (p. 35)

While L. K. Miller's viewpoint seems to be totally production or task-oriented, from an OBM viewpoint behavioral principles and procedures can help achieve both task completion and employee satisfaction by identifying functional reinforcers for individual employees and then using them to reinforce productive behavior. Labeling an event as a motivator or a hygiene factor becomes irrelevant because it is the identified reinforcing event which is important in motivating employees and maintaining their performance.

In summary, the theories of Maslow, McGregor, and Herzberg have served a useful purpose in helping managers better understand human behavior, but they have not provided any precise means of behavior control. OBM goes beyond these theories to establish some basic principles for predictable behavior change.

Principles and Qualities of OBM

Kreitner (1981) proposed that the three basic principles of OBM are (a) isolate key job behaviors, (b) rearrange antecedents to provide opportunities and remove barriers, and (c) reinforce performance improvement with conditionally granted desired consequences. These three principles can be reduced back to the A-B-C model. The first principle refers to the B or "behavior" component. In OBM, the focus is on observable, measurable behavior. Kreitner emphasized that it is the behavior itself rather than motives for the behavior that should be of most concern to managers. Furthermore, the behaviors should be those that are important or critical to the organization's success, and attention should be focused on what is right rather than what is wrong with performance.

The second principle refers to the A or "antecedent" part of the model. The proper arrangement of antecedent conditions not only serves as a cue for desired performance, but also removes barriers to improved performance.

The third principle, or C component, refers to the "consequence" for performance. Unless desired behaviors are reinforced, they will not continue. As mentioned previously, consequences, whether reinforcing or punitive, must be ones which are meaningful to the individual staff member. In keeping with good behavioral practices, Kreitner (1981) emphasized that positive consequences should be given after, not before, the desired work is performed and that reinforcers should be contingent on actual work performed, not merely the passage of time. Finally, he stressed that "pay-offs" should be given intermittently rather than on a fixed schedule.

While the three principles give administrators an effective and predictable means of changing staff behavior, OBM has some other characteristics which enhance its attractiveness as a management tool.

OBM has four major qualities which make it particularly useful (Riley & Frederiksen, 1983). The first of these qualities is its theoretical perspective. Since it is based on behavioral psychology, it allows access to a large body of available research and information.

The second quality is the methodology itself (Riley & Frederiksen, 1983). By using applied behavior analysis, OBM relies on ongoing measures of observable behavior in the natural environment. This allows for detection of behavioral change and facilitates generalization to similar working environments.

The third quality is a body of "hard" data (Riley & Frederiksen, 1983). Rapp, Carstensen, and Prue (1983) confirmed through their review of the literature that most of the experiments conducted have been well-controlled. Furthermore, the studies have dealt with real employees in actual organizational settings. Administrators, therefore, do not have to "start from scratch," but can draw upon relevant research done in similar settings.

The fourth and final quality is techniques for behavior change (Riley & Frederiksen, 1983). The techniques used in OBM have been confirmed to be effective first in the laboratories of behavioral psychologists using well-controlled experiments, and then in the field through applied research. OBM does not rely on speculation, but rather on repeatedly verified and predictable principles of behavior change (Riley & Frederiksen, 1983).

Application of OBM

The OBM literature has been burgeoning in recent years, particularly since about 1978. An annotated bibliography by Rapp, Carstensen, and Prue (1983), covering the OBM literature for the years of 1978 through 1982, readily illustrates the broad use of OBM.

Behaviors targeted for change have included (a) employee off-task behavior and positive interactions with residents (Brown, Willis, & Reid, 1981), (b) record keeping (Frederiksen, Richter, Johnson, & Solomon, 1981), (c) planning and evaluation of instructional programs (Maher, 1981), (d) careprovider performance (Kunz, Lutzker, Eddleman, Lutzker, Megson, & Gulley, 1982), (e) staff tardiness (Repp & Deitz, 1979), (f) housekeeping tasks (Anderson, Crowell, Sponsel, Clarke, & Brence, 1982), (g) client contacts in a real estate brokerage (Anderson, Crowell, Sucec, Gilligan, & Wikoff, 1982), (h) completing a master's thesis (Dillon, Kent, & Malott, 1980), (i) waste reduction (Eldridge, Lemasters, & Szypot, 1978), (j) machine paced production (Frost, Hopkins, & Conard, 1981), (k) interpersonal helping behavior of industrial foremen (Kaplan & Cowen, 1981), (l) friendliness in a fast foods franchise (Komaki, Blood, & Holder, 1980), (m) worker efficiency (Wikoff, Anderson, & Crowell, 1982), (n) absenteeism (Shoemaker & Reid, 1980), (o) accident prevention (Sulzer-Azaroff, 1978), and (p) shoplifting (Carter, Hansson, Holmberg, & Melin, 1979). Consequences used to change behavior have included (a) token reinforcers (Anderson, Crowell, Sponsel, Clarke, & Brence, 1982); (b) cash awards, paid club memberships, and an opportunity for an all-expense paid trip (Bowles, Malott, & Dean, 1981); (c) weekly feedback and praise (Dick, 1978); (d) paid time-off and lottery tickets (Luthens, Paul, & Baker, 1981); (e) external feedback and self-generated feedback (Ivancevich & McMahon, 1982); (f) public displays of performance results (Rhoton, 1980); (g) systematic supervisor counseling and commendations (Shoemaker & Reid, 1980); and (h) work breaks (Komaki, Blood, & Holder, 1980). Intervention results of the previously mentioned studies have included (a) a decrease in employee off-task behavior and an increase in employee-resident interactions (Brown, Willis, & Reid, 1981), (b) the completion of a higher percentage of instructional programs (Maher, 1981), (c) a $105,000 reduction in waste in a production department (Eldridge, Lemasters, & Szypot, 1978), (d) an increase in turning in reports on patients (Repp & Deitz, 1979), (e) an increase in friendliness behaviors in a fast foods franchise (Komaki, Blood, & Holder, 1980), (f) a decrease in chronic absenteeism among institutional staff (Shoemaker & Reid, 1980), and (g) a decrease in the incidence of industrial accidents (Sulzer-Azaroff, 1978).

The behaviors and consequences cited above represent only a small sample of the possible uses of OBM. Any behavior which is observable, and therefore measurable, can be targeted for change. Any event which is reinforcing or punishing to the individual employee can be used as a meaningful consequence to effect behavioral change. The possibilities for the use of OBM are therefore virtually limitless.

Before implementing any contingencies for behavioral change, it is first necessary to specify the actual work task that is to be done. The next section summarizes relevant literature on this topic.

Specifying Behavioral Parameters for Job Performance

Although various authors (Bourdon, 1982; Crowell & Anderson, 1982; L. K. Miller, 1978) have generally recognized the need to clearly outline work expectations for employees, only a few have actually done so as part of a research study. In one such study, done by Dillon, Kent, and Malott (1980), written task specifications were given as part of an intervention package to increase master's thesis research. Even though the intervention included other features such as weekly monitoring, weekly feedback, and added incentives, the written task specification was seen as instrumental in producing an increased rate of completion of the weekly research tasks.

In another study (Anderson, Crowell, Sponsel, Clarke, & Brence, 1982), detailed checklists were used to inform room attendants of those aspects of a room which required attention in order to meet an established standard of cleanliness. The same checklists were used to evaluate room-cleaning activities of the attendants. Following the introduction of the checklists, the performance of all subjects improved and maintained.

Checklists were also used in a study designed by Bacon, Fulton, and Malott (1982) to improve staff performance. Although the checklists served several purposes in that study, one purpose was to provide task definition. As a result of the use of a checklist system, the percentage of tasks completed improved by 28.8%.

In considering barriers to staff accountability, Bourdon (1982) saw "lack of expectations" as a contributor to lack of accountability. He stated that "work expectations are often miscommunicated because they are presented glibly in verbal form or even more subtlely by innuendo" (p. 102).

The use of a checklist forces managers to define and more objectively state work expectations (Anderson, Crowell, Sponsel, Clark, & Brence, 1982), resulting in improved communication between the employee and the supervisor. Also, checklists generally reduce behaviors to ones which are observable and measurable (Bourdon, 1982).

Whether checklists are used or not, Bourdon (1982) pointed out that it is important to analyze job outputs. This process is usually best accomplished in a face-to-face dialogue where both the employee and the supervisor have a chance to negotiate the results. During this process, the supervisor should not hold an employee accountable for outcomes over which he/she does not have complete control (Bourdon, 1982).

Bourdon stressed that the integrity of an accountability system is dependent to a great degree on the quality and reliability of the measures. It is therefore important to build in a system which makes data collection easy and accurate, and which does not involve a time consuming process or costly additional resources.

Performance Feedback

Performance feedback is one of the most popular and widely used intervention procedures within the field of organizational behavior management (Andrasik, 1979; Prue & Fairbank, 1981; Prue, Frederiksen, & Bacon, 1978). A number of research studies have been done on the subject, and as a result, it is possible to make certain generalizations. The literature can be divided into studies pertaining to individual feedback versus group feedback. Representative literature reviews with respect to each have been done by Ilgen, Fisher, and Taylor (1979) and Nadler (1979).

Individual Feedback

Ilgen et al. (1979) analyzed the literature by classifying various studies according to the component of communication to which they are logically related: source, message, or recipient. The three sources of feedback are other persons who have observed the individual's behavior and who are in a position to evaluate it, the task environment, and the individual himself/herself. Relating to and affecting feedback from a source are credibility and power. Given this framework, the following generalizations can be drawn:

1. Individuals rely most upon sources close to themselves for feedback. In descending order of importance are self, the task, supervisor, co-workers, and the organization (Greller & Herold, 1975).

2. Feedback is better accepted if the source is considered to have expertise in the subject (Halperin, Snyder, Shenkel, & Houston, 1976; Tuckman & Oliver, 1968) and is trusted (Huse, 1967).

3. The more the source is seen as controlling valued outcomes, the more likely the individual is to respond to that source (Ilgen et al., 1979).

A feedback message is of value to the individual because it provides him/her with information as to the accuracy of his/her response (Bourne & Bunderson, 1963). The individual must be able to interpret the feedback message in terms that have meaning and which can therefore be used to determine future directions of behavior (Annett, 1969). Feedback messages can also be viewed in terms of their function, which may be either directional or motivational, for the individual. The directional function makes specific those behaviors which need to be performed by the individual, whereas the motivational function provides information about outcomes associated with reinforcers. Annett further proposed that feedback can become a conditioned reinforcer or punisher if it is repeatedly paired with positive or negative outcomes.

Ilgen et al. (1979) concluded the following from their review:

1. To be meaningful, feedback must be paired with the appropriate response (Buchwals & Meager, 1974).

2. While behavioral research has demonstrated the effectiveness of immediate feedback, Bourne and Bunderson (1963) concluded that learning is not affected by a time delay as long as the period between the response and the feedback is not filled with interfering activities.

3. Positive feedback is generally perceived and recalled better than negative feedback (Ilgen & Hamstra, 1972).

4. The more frequent the feedback, the better the effect (Anderson, Kulhavy, & Andre, 1971).

5. Specific support (critical incidents) for feedback strengthens its acceptance (Leskovec, 1967).

6. Nonspecific positive feedback is of little value (French, Kay, & Meyer, 1966). Steers and Porter (1974) recommended that positive feedback be detailed enough to allow for setting specific goals.

7. Feedback can serve as an incentive, particularly as it serves as a "promise of reward" (Annett, 1969).

8. Feedback which facilitates feelings of personal control and competence enhances intrinsic motivation (Fisher, 1978).

According to Ilgen et al. (1979), a reaction to feedback is produced by the interaction between the recipient characteristics and the source and message characteristics. In general, perception of feedback is related to the recipient's frame of reference. A summary of research findings is as follows:

1. Baron and Ganz (1972) found that subjects with internal locus of control performed better than externals when self-discovery (task-supplied) feedback was the only type of feedback, whereas externals performed better than internals when feedback was available from an experimenter only.

2. Persons with high self-esteem perceive positive feedback more clearly than negative feedback (Ilgen et al., 1979).

3. Subjects high in social anxiousness expect to be evaluated more negatively, and actually perceive feedback as more negative, than those subjects who are low in social anxiousness (Smith & Sarason, 1975).

4. Older persons use feedback less than younger persons (Meyer & Walker, 1961).

Group Feedback

Nadler (1979) reviewed experimental research dealing with the effects of feedback on the functioning of task groups. Nadler said that group feedback is different from individual feedback in that the information received may be confounded by the actions of other group members and that the individual is limited by the group in his/her ability to act on the feedback information. As a framework for examining the research, Nadler selected four categories: characteristics of the feedback, nature of the feedback process, individual differences, and task structure.

In regard to the characteristics of feedback, the aggregation level (i.e., whether the feedback is concerning the behavior of individual group members, the entire group, or both the group and individuals) has an impact on group functioning. In comparing group, individual, and no feedback conditions, Berkowitz and Levy (1956) found that group feedback was more effective than individual feedback. They also concluded that subjects receiving group feedback displayed higher levels of pride in the group and higher levels of motivation than subjects receiving individual feedback. Zajonc (1962), however, speculated that performance is best when individuals have feedback about the performance of themselves, other group members, and the group as a whole. Zander and Wolfe supported Zajonc's contentions in their 1964 study, and further suggested that group level feedback is most effective when the group task is structured interdependently and less effective when the individual work roles are not interdependent. In examining aggregation levels as they relate to individual differences, E. G. French (1958) found that affiliation oriented persons respond better to group level feedback, while task or achievement oriented persons respond better to individual feedback.

Another kind of feedback focuses on the process of how the group functions rather that its output. Process feedback deals with such things as feelings, climate, and how well the group works together. In a study done by Gibb, Smith, and Roberts (1955), process feedback was found to produce less defensive feelings among group members and higher task efficiency than did task feedback. Also, E. G. French (1958) discovered that performance is further affected by an interaction between the kind of feedback and the motivational level of the subjects. French found that groups high in achievement needs performed better in the task feedback condition, whereas groups high in affiliation needs performed better in the feeling feedback condition.

Although the literature on the differences between task and process feedback is somewhat limited, available information suggests that process feedback serves a cueing function while task feedback relates more to motivation. Process feedback cues the group by calling attention to the effectiveness of the performance strategies it is using, thereby giving the group information which can lead to continuation or change and consequent improvement in performance (Argyris, 1970; Schein, 1969). Task feedback, on the other hand, focuses on the end product rather than the process, and motivates the group through its expectation of successful performance.

Feedback can also have an evaluative component. It can give the group, or individuals within the group, either favorable of unfavorable messages. Subjects in a study by Berkowitz and Levy (1956) showed less pride in their group and lower task oriented behavior after receiving unfavorable feedback. Berkowitz and Levy also discovered that individuals respond less defensively to unfavorable feedback when it is given to the group as a whole, rather than to individuals. In an investigation of coping responses to negative feedback, Dustin (1966) found that teams receiving unfavorable feedback raised their aspiration levels less, attributed causes of team performances to factors outside the team itself, and showed more positive distortion of team scores than those teams receiving favorable feedback.

Evaluative content can also effect the group structure. Berkowitz, Levy, and Harvey (1957) found that favorable feedback on performance resulted in attraction between members, particularly among those with high task motivation. Similarly, Burnstein and Zajonc (1965) demonstrated that members of groups who received favorable feedback were more receptive to reducing an incongruence in status than were members of groups who received unfavorable feedback.

The nature of the feedback process refers to how the group works with information received. The group may disregard the feedback, use it to set performance goals which can have motivational effects, or use it for problem-solving activities which provide cueing effects.

With regard to the relationship between goal-setting and feedback, authors such as Locke, Cartledge, and Koeppel (1968) have contended that goal-setting enables feedback to have a motivational effect. According to Zander (1971), feedback impacts on group goals and levels of aspiration, thereby motivating the group toward improved performance. This contention was further supported in a study by Kim and Hamner (1976) in which they found that performance in a goal-setting group was enhanced by the addition of feedback.

Individual differences serve as moderators of response to feedback. Berkowitz, Levy, and Harvey (1957) concluded that high motivation groups responded better to unfavorable feedback than did low motivation groups, while E. G. French (1958) found that high affiliation groups responded much more positively to group than to individual feedback. On the other hand, aggregation level made no difference to high achievement groups.

Task structure refers to the nature of the task which the group performs and to how individual performance relates to group performance. The factors of relevance have already been mentioned.

In summary, it is apparent that several factors interact with feedback to determine group performance. These factors include characteristics of the feedback itself, the nature of the feedback process, characteristics of the individual group members, and the nature of the group's task.

Performance Feedback in OBM

A review of performance feedback in organizational behavior management (OBM) was done in 1981 by Prue and Fairbank. According to them, there are several features which make performance feedback interventions attractive. They are (a) low economic costs to organizations, (b) simplicity of implementation and lack of need for sophisticated training programs, (c) decrease in the use of unprogrammed aversive control through the substitution of positive contingencies, and (d) an available intervention strategy.

In their review, Prue and Fairbank included studies involving both individual and group feedback. Following is a 5-point summary of the review and conclusions:

1. While feedback can be either private or public, comparisons of relative effectiveness suggest that public feedback may be more effective than private feedback (Welsh, Ludwig, Radiker, & Krapful, 1973). There are times, however, when private feedback may be the preferred method. Prue and Fairbank (1981) suggested private feedback when (a) baseline performance is low and publicly displayed feedback might be too aversive, (b) supervisors are interpersonally skilled in delivering feedback on a one to one basis, (c) resources exist for the expenses incurred in delivering individual feedback, (d) workers are in close proximity to their supervisors, and (e) individual performance is compared with baseline performance or a designated standard.

2. There are four basic feedback mechanisms (verbal, written, mechanical, and self-recorded). Verbal feedback is the most common method and has the advantages of being a face-to-face encounter, being of short duration, and permitting immediate feedback. Hidden limitations, on the other hand, include inability to conduct face-to-face encounters due to distance, and lack of appropriate interpersonal skills or positive rapport on the part of the supervisor (Eldridge, Lemasters, & Szypot, 1978). Written feedback can include letters, memos, newsletters, and public posting. Although public posting has been the most common method, it can be aversive for the employee if he/she is not performing well (Prue & Fairbank, 1981). Mechanical feedback includes videotape feedback and electromechanically operated tape printouts. Advantages of mechanical feedback include low cost and continuous and immediate delivery of feedback. Although not yet proven, a disadvantage may be adaptation to the device and a consequent decrement in performance (Prue & Fairbank, 1981). Self-recorded feedback consists of situations in which the individual records his/her own performance. An obvious advantage is that this method actively involves the employee and gives him/her a better sense of control. A major problem, however, is reliability, particularly if there are no permanent products of the behavior left to serve as concrete evidence of performance (Greller, 1980).

3. Employees may be provided different types of feedback information. According to Prue and Fairbank (1981), types of feedback information which can be provided to employees include

> (a) comparison of an individual's performance with his/her previous performance; (b) comparison of an individual's performance with a standard which is determined by the performance of a large number of

> individuals; (c) comparison of a group's performance with its previous performance; (d) comparison of a group's performance with a standard group performance; and (e) presentation of individual's performance as a percentage of group's performance. (p. 8)

Factors which help determine which type of feedback to select include the organization's current mechanisms for collecting information, whether or not comparisons can be drawn between employees, the type of remuneration employed by the organization, the components of the feedback message, and the possibility of combining the feedback message with other types of information. With regard to the above factors, some suggestions are to interface the feedback content as closely as possible with the pay format of the organization to enhance the effectiveness of both the pay schedule and the performance of the individual (Hamner & Hamner, 1976); convey information which will help improve or maintain desired performance (Nadler, Mirvis, & Cammann, 1976); avoid references to personal characteristics of the employee (Fletcher & Williams, 1976); enhance feedback with supportive statements (Nemeroff & Wexley, 1979), social praise (Runnion, Johnson, & McWhorter, 1978), constructive criticism (Alpander, 1980), and modeling (Walter, 1975); and combine feedback with goal-setting when possible (Nemeroff & Cosentino, 1979).

4. While the duration of feedback is not a significant variable by itself, contiguity or latency between performance and feedback does influence effect. Hall (1966) suggested that there is an inverse relationship between performance on complex tasks and delay of feedback.

5. Sources of feedback include supervisors, coworkers, subordinates, consultants, mechanical devices, and the employees themselves. Prue and Fairbank (1981) suggested that the factors to consider when selecting a source of feedback are "(a) the competence of

the individual, (b) the amount of control the individual has over reinforcers and punishers, (c) the sincerity of the individual, and (d) the past history of the individual's interactions with the organizations' employees" (p. 11).

One final aspect of performance feedback considered by Prue and Fairbank (1981) is its effect on behavior. Change in employee performance is generally attributed to the reinforcing effects of feedback. By definition, if an event increases the probability of the behavior which it follows, it can be called a positive reinforcer. Contingent performance feedback which maintains or increases employee performance would certainly fit the definition of a positive reinforcer.

As previously mentioned, Annett (1969) speculated that feedback could serve as a reward or punisher if it was conditioned in over time through pairing with positive or negative outcomes. For example, if poor performance evaluations have been paired in the past with termination from jobs, it stands to reason that the employee would perceive performance feedback through evaluations as punitive. If, on the other hand, good performance evaluations in the past have resulted in raises, the employee would probably perceive evaluations as potential reinforcers. Annett further stated that feedback of this nature increases motivation by serving as an incentive for future rewards.

On a more theoretical level, Malott and Whaley (1976) suggested that feedback serves as a discriminative stimulus to exert instructional control over the next response. This idea was investigated and supported in a study by Krumhus and Malott (1980). Feedback can actually serve as an antecedent stimulus which instructs employees of changes in the behavioral requirements of their position (Prue &

Fairbank, 1981). In order for feedback to serve as a discriminative stimulus, previous changes in performance following feedback interventions must have been consequated either positively or negatively. An example of stimulus control would apply in the case of public posting, where employees may change their performance to avoid embarrassment (a negative reinforcement situation).

Argyris (1977) contended that performance feedback improves performance by providing employees with the means to detect and correct errors. The idea that feedback is information about the actual performance or actions of a system used to control the future actions of a system was first introduced by sybernetic theorist Weiner (1948). The concept of feedback was applied to social systems by von Bertalanffy (1968) and to organizations by Katz and Kahn (1966). All of these authors endorsed the idea that feedback is necessary to guide the course of the system in which it operates.

Vroom (1964) contended that feedback serves three different functions. In the cue function, it increases the probability of correct expectancies concerning the consequences for successful task performance. In the learning function, it increases the strength of correct expectancies and decreases the strength of incorrect expectancies regarding consequences for successful performance. Finally, in the motivational function, feedback increases the valence for successful performance.

Performance feedback may have indirect results as well. It may lead to changes in the organizational environment, or modification of interpersonal interactions, which then alter the performance of the individual (Prue & Fairbank, 1981).

In summary, enough research on performance feedback in organizational settings has been done to provide managers with some rather specific guidelines for improving staff performance. In the next section, the implications that the review of the literature had for the present study are described.

Implications of the Literature for the Present Study

The basic foundation for the present study was derived from the works of McGregor, Maslow, and Herzberg. The assumptions that employees can be self-directed and motivated to perform well when given the proper environment and circumstances came directly from McGregor's Theory Y. The present study expanded on these assumptions by using OBM principles to clearly specify antecedent behaviors (job duties defined by specific behavioral parameters) and consequences (written performance feedback in the form of publicly posted checklist scores). Consistent with the works of Maslow, feedback on checklist scores had the potential to enhance esteem, particularly when improvement could be seen over the employee's past performance and in comparison with the scores of coworkers. The study design incorporated Herzberg's contention that achievement, recognition, and increased responsibility are motivators. The defining of job duties by specific behavioral parameters gave the employees responsibility for their own performance, while the public posting of checklist scores allowed them to determine achievement and to receive recognition.

Many of the findings of the literature reviewed pertaining to specifying behavioral parameters for job performance and performance feedback had implications for the present study. In targeting the particular behaviors assessed and modified in this research study, some of the suggestions made by Bourdon (1982) were used as guidelines. First, behaviors over which the employee did not have control were not targeted. All three behaviors selected as performance measures were under the direct control of the staff.

While Bourdon emphasized that establishing performance objectives is best accomplished on a participative basis between the employee and his/her supervisor, the performance objectives and criteria in this study were determined by the author. Using a joint approach would have contaminated the baseline data as well as the intervention data. Ordinarily, however, the procedure of choice should be to involve employees in defining their job duties and in establishing reasonable performance parameters.

Bourdon also pointed out that there are two types of job expectations. There are those that are ongoing responsibilities and those that are transitional in nature. These latter objectives are usually associated with special projects. For the purpose of this study, the former type, those that were more standardized, were selected. The three target behaviors of this study were ones which had to be performed daily and had to be performed in the same manner by all direct care staff.

Finally, Bourdon specified that behaviors selected must be observable and therefore measurable. The three behaviors used in this study were broken down into discrete, observable events which were recorded on a checklist. These checklists were also used to specify for the employee the exact operations involved in performing each behavior.

The checklist items were discrete enough to ensure reliable recordings by different observers and to produce scores which were consistent with the employee's own assessment of his/her performance.

Feedback was selected as a contingency in this study because of its well-documented effectiveness and because of its cost effectiveness. The program in which this study was conducted had no budgeted funds for tangible reinforcers or incentive programs which incurred extra cost. The author also wanted to use a contingency which could be maintained indefinitely, and which would readily generalize to other staff and other performance measures.

Giving performance feedback to the staff in the form of checklist scores ensured that the feedback was directly related to observable aspects of their performance, thus enhancing the credibility of the feedback. In keeping with the information presented in the review by Ilgen, Fisher, and Taylor (1979), the checklist scores represented meaningful units of information which translated into an evaluation of performance.

The checklist scores were shared with the staff member immediately after each observation. Feedback given in this manner utilized a face-to-face encounter and therefore facilitated good communication between the observer and the employee being rated (Prue & Fairbank, 1981).

A suggestion made by Bourdon (1982) was to give frequent feedback. Bourdon proposed as a general rule that "any feedback schedule which extends beyond a week's performance threatens the viability of the information" (p. 108). Part of the feedback (showing the employee the checklist score) used in this study was immediate. The graphing or public posting of the score was done by the end of the workday.

According to Giffen (1967), expertise in the area being assessed should positively influence the staff member's acceptance of the feedback being given. For this reason, the behavioral services coordinator evaluated those work behaviors which pertained to behavioral procedures (token data collection and effective use of reinforcers) and the nurse evaluated the client care (client grooming) behaviors. All observers in the study were part of the administrative staff and therefore had a definite degree of power over valued outcomes, which according to Ilgen et al. (1979) should have increased the recipient's response to the feedback.

Assuming that the staff equated good checklist scores with good performance evaluations, the scores themselves became secondary or conditioned reinforcers and served as intermediate reinforcers of performance until more formalized performance evaluations, such as annual evaluations, occurred. The fact that employees had control over their own performance and therefore over checklist scores should also have given them a feeling of control over their performance evaluation ratings.

The use of public posting of the checklist scores incorporated many of the points made in the review by Prue and Fairbank (1981). Public posting allowed the employees to rapidly and easily assess not only their own performance, but how it related to past performance and to the performance of other group members. The use of codes rather than names removed the disadvantage of possible embarrassment for poor performance, but still maintained the advantages of comparison with other staff members. The use of checklist scores, personal feedback on these scores, and public posting also allowed for the combined use of both verbal and written feedback.

Other factors mentioned in the review of the literature and which were incorporated either directly or indirectly in this study included (a) clear and specific feedback, (b) emphasis on the performance of the individual, (c) avoidance of reference to personal characteristics of the employee, (d) social praise for good performance, and (e) constructive criticism for inadequate performance.

CHAPTER III

STUDY DESIGN AND METHODS

Described in this chapter are the design of the experimental study and the methods used. Specifically, it includes (a) setting and study participants, (b) the experimental design, (c) the experimental procedure and conditions, (d) measurement of the dependent variables, (e) data collection and observer training, and (f) data analysis.

Two basic research questions were to be answered:

1. Does defining job duties related to token data collection, client grooming, and effective use of reinforcers in specific behavioral parameters improve job performance over a baseline condition in which employees receive standard state job descriptions only?

2. Does written performance feedback further enhance job performance after job duties are defined in specific behavioral parameters?

Additionally, a corollary research question was to be answered: Under the same experimental conditions (e.g., defining job duties in specific behavioral parameters, and providing written performance feedback), do lead group instructors (staff members consistently working with the same client) and floaters (staff members working with different clients) perform differently?

Setting and Study Participants

The experimental study was conducted in a residential facility for dual-diagnosis clients. The facility, located on the grounds of a state mental health institution, was administered under a contractual arrangement between a private organization serving mentally retarded and emotionally disturbed persons and the district developmental services program office of the Florida Department of Health and Rehabilitative Services. There were 20 clients being served by the unit, ranging in age from 21 to 50 and from severe to mild levels of retardation. All clients were previously patients at the mental hospital and were transferred to the unit under study when their psychosis was in remission.

The employee subjects of the study were the six direct care employees (Unit Treatment and Rehabilitation Specialists) assigned to the day shift (7:45 a.m. to 4:15 p.m.). Employees ranged in age from 22 to 45, and in educational levels from high school diploma to baccalaureate degree. Three of the six employees were previously assigned to the mental hospital and were transferred to the dual-diagnosis unit when it opened. Their experiential backgrounds were therefore in mental illness rather than mental retardation. All six employees received the same basic training in behavior modification.

Minimum staff in the unit at a given time was four persons. Under the client accountability system used, each employee was assigned to a group of five clients for whom he/she was responsible for the total care. The unit had four such groups. Duties included supervising the clients at all times, conducting all prescribed training programs, monitoring the health and safety of clients, implementing all prescribed behavioral contingencies, and recording program data. The client membership in each of the four groups of clients remained the same every day, with a staff "lead group instructor" assigned to each group for the full five days of his/her work week. On off duty days, or days when the lead group instructor was not at work due to illness or approved leave time, a "floater" was assigned to the group.

During the study, one employee was absent from work for an extended period of time due to a work related injury. She was not included in the study, thereby limiting the number of subjects to six. When a floater was not available to cover her client group, a contract behavioral staff member was assigned to it. Data were not collected for this person, and the group data for these days included only the three Unit Treatment and Rehabilitation Specialists on duty.

The Experimental Design

Practical limitations, ethical considerations, or problems in staff cooperation can make the use of sequential withdrawal or reversal designs unacceptable in certain treatment interventions (Baer, Wolf, & Risley, 1968; Hersen & Barlow, 1976; Johnston, 1972; Kazdin, 1973; Leitenberg, 1973). In the case of the present study, improvements in staff behavior were predicted to correspond to consequent improvements in client care, and it would therefore have been unethical to withdraw or reverse that improved level of care. Furthermore, the administration of the project within which the study was conducted did not want the staff to feel that they were being the object of experimentation. A design which did not involve a withdrawal or reversal was therefore more palatable and helped to demonstrate a desire on the part of the administration to improve services and then maintain them.

To avoid the problems cited above, a multiple baseline design was used for the study. Baer, Wolf, and Risley (1968) described a multiple baseline technique as one in which

> a number of responses are identified and measured over time to provide baselines against which changes can be evaluated. With these baselines established, the experimenter then applies an experimental variable to one of the behaviors, produces a change in it, and perhaps notes little or no change in the other baselines. (p. 94)

Hersen and Barlow (1976) elaborated on this description by adding that

> subsequently, the experimenter applies the same experimental variable to a second behavior and notes rate changes in that behavior. This procedure is continued in sequence until the experimental variable has been applied to all of the target behaviors under study. In each case, the treatment variable is usually not applied until baseline stability has been achieved. (p. 226)

Hersen and Barlow acknowledged that the multiple baseline design is weaker than the withdrawal design because the controlling effects of the treatment on each dependent variable are not as directly and clearly demonstrated. Instead, evidence is established by showing the same effect across more than one variable, such as might be done in separate A-B designs. With regard to the issue of how many baselines are needed to establish confidence in the controlling effects of the treatment, Barlow and Hersen (1973) suggested a minimum of three, and Wolf and Risley (1971) recommended three or four. In keeping with these recommendations, the present study used three baselines and three dependent variables.

There are three basic types of multiple baseline designs: across behaviors, across individuals, and across situations. The type selected for this study was the "across behaviors" design. Three behaviors were used as the dependent variables. As identified previously, they were (a) token data collection, (b) client grooming, and (c) effective use of reinforcers. As explained in further detail in the next part of the chapter, an observer-checklist procedure was used to measure the variables.

The multiple baseline across behaviors design was used twice. After completion of Intervention I, the same procedure, across the same behaviors, was repeated for Intervention II. The study was divided into two intervention phases to help isolate the effects of the independent variable of written performance feedback. The interventions and experimental conditions are described in detail in the following section.

Experimental Procedure and Conditions

Determination of the Baseline

All employees were given the standard state job description for their positions. They were required to read and sign their job descriptions shortly after joining the unit. Baseline determination consisted of measuring employee performance on the three performance measures of the dependent variables (token data collection, client grooming, and effective use of reinforcers). Employees were not told that any special data were being collected, and since they were accustomed to being observed and to having data collected, no reaction from them was expected or observed. Data were collected simultaneously on all three variables and included observations of all direct care staff including lead group instructors and floaters.

Token data were collected by having one of the observers momentarily remove the token data sheets for a client, score the checklist, and return the data sheets to the group data book. Client grooming data were collected by temporarily removing a client to another part of the unit where the observer inspected the client, scored the grooming checklist, and then returned the client to his/her group. The competency checklist for the effective use of reinforcers was completed by an observer who watched an employee conduct one of the daily training sessions and then rated the employee on the use of positive reinforcement procedures. Since the training sessions required the continual use of positive reinforcers, it required no more than five minutes to complete the competency checklist on an employee.

Once intervention started for the first target behavior (token data collection), baseline data collection continued on the other two target behaviors until intervention was sequentially started on each of them. In all cases, baseline data collection continued until stability had been achieved for the particular behavior being assessed. During the baseline determination, employees were given random, spontaneous verbal praise for doing a good job with clients, and given constructive verbal criticism for deficiencies observed. This procedure had been ongoing since the opening of the unit, and therefore constituted a continuation of previous procedures. Baseline data collection continued until a stable measure had been obtained, but generally consisted of at least 10 observations per staff member.

Definition of Behavioral Parameters (Intervention I)

First, the employee subjects were given a precise, behavioral definition of their job expectations regarding the recording of token data (see Appendix A). This definition included (a) performance expectations, (b) data collection/verification procedure, (c) evaluation criteria, and (d) a copy of the checklist to be used by the observer.

The employees were informed that they would be observed as usual and that the purpose of the information being given to them was to ensure that they knew precisely what was expected of them concerning the collection of token data. They were not given any written feedback regarding their performance. The usual procedure of verbal praise for a good job and constructive verbal criticism for deficiencies continued, as in the baseline phase. They were also told that the evaluation criteria given to them on the "job performance standard sheet" would be used at the normally scheduled performance evaluation times (i.e., end of probationary period, annual evaluation).

Once performance on the token data collection variable had stabilized, the employees were given a job performance standard sheet with the same information for client grooming (see Appendix B) as that outlined above for token data collection. Following the multiple baseline design, this procedure was repeated a third time for the effective use of reinforcers (see Appendix C). As noted previously, intervention did not begin until performance had stabilized on the previous variable. Data collection and intervention continued on the other dependent variables.

Defined Behavioral Parameters Plus Written Feedback (Intervention II)

Following a multiple baseline design again, written feedback was sequentially added to the previous intervention for each of the three dependent variables, beginning with token data collection and moving across client grooming to effective use of reinforcers. As intervention began for each dependent variable, the employees were told that they would now receive written feedback on their performance for that particular measure. Written feedback included showing an employee his/her checklist score and graphing the score on a public display board. Immediately following an observation, the observer-checklist score was shared with the employee, and the score was graphically displayed by the end of the workday. Confidentiality was preserved by assigning each employee a letter, known only by the employee and the observers. The graphic display allowed the person to compare present individual performance to previous individual performance, and to compare his/her performance with that of his/her coworkers.

As in Intervention I, intervention on a new performance variable did not begin until the data on the previous performance variable had stabilized. As each new performance variable was added, data collection continued on the previously introduced variables.

Since Intervention II was introduced after Intervention I, it was possible to determine the additive effect. Intervention II did not begin until Intervention I had been implemented across all three dependent variables and until a stable measure had been achieved for each.

Measurement of the Dependent Variables

Data for each dependent variable were determined on a specific observer-checklist developed by the author to measure the particular behavior associated with the variable. The observer-checklist for token data collection contained 7 items, the observer-checklist for client grooming contained 20 items, and the one for effective use of reinforcers contained 5 items.

Each item on each observer-checklist represented an observable behavior or the result of a behavior. For each checklist, the items collectively indicated adequate performance of the particular job duty (i.e., token data collection, client grooming, effective use of reinforcers). For each behavior or behavior result on the checklist that the employee was observed to perform correctly, he/she was given one point. The total number of points scored on each checklist at each observation represented an independent score for the particular employee observed.

The observer-checklists had not been standardized or validated, but the same checklists were used with all employees. Copies of the checklists may be found in Appendix D.

Data Collection and Observer Training

Data on all three dependent variables during the baseline phase and Interventions I and II were collected by professional-level staff, consisting of the unit nurse and the coordinator of behavioral services. These persons were trained in observation procedures, but were not informed of the purpose of the study or given details regarding the research procedures. Data about each variable were collected daily at random times during scheduled activity periods on the first shift (8 a.m. to 4 p.m.). More than one observation was made on some days to prevent the employees from anticipating the observation times and relaxing their performance afterwards.

Before a staff member was allowed to serve as an observer, he/she had to obtain a reliability score of at least 90% for three consecutive observations on the particular variable under consideration. Reliability observations were conducted by comparing the observer-checklist score of the staff member with that of the author. An agreement was scored if both observers scored a checklist item the same; that is, both observers agreed that the item was in compliance or both agreed that it was not in compliance. A disagreement was scored if the observers scored a checklist item differently; that is, one observer scored an item in compliance and the other observer scored it not in compliance. Reliability percentages were calculated by dividing the number of agreements by the number of agreements plus disagreements and then multiplying by 100. Reliability checks continued to be conducted on each variable monthly for a total of 27 times throughout the study and ranged from 80% to 100%, with an overall average of 98%.

Data about token data collection and client grooming were collected on each client in the group supervised by a particular employee. The collection of data on each client helped assess for any variation in employee performance that might have been caused by client variables such as level of retardation, severity of behavior problems, personality characteristics, or other factors. Since the effective use of reinforcers related to the whole group of clients or any combination of clients within the group, the data were not associated with individual clients; therefore, similar individual client comparative analyses were not possible.

Data Analysis

In analyzing the data related to the two major research questions, a time-series design was employed. A time-series design is a research procedure in which periodic measurements are taken on some group or individual, an experimental change is introduced into the time-series, and the results are indicated by a discontinuity in the measurements (Campbell & Stanley, 1963). According to Hersen and Barlow (1976), a time-series design can be readily used with a multiple baseline design. An advantage of both time-series designs and multiple baseline designs is that the subjects in the group serve as their own control.

A time-series design allows the composition of the group to vary (Huck, Cormier, & Bounds, 1974). For the present study this was an important feature since the same employees were not on duty every day, and the actual number on duty varied from three to six. Although the group composition was ultimately the same over time, there were daily variations as a result of rotating work schedules and 7-day coverage.

As pointed out by Hersen and Barlow (1976), "A time-series analysis simultaneously examines trends in the data and changes in level of the data across phases" (p. 278). A time-series analysis considers three different characteristics of change: (a) change in level, (b) change in slope, and (c) presence or absence of drift or slope.

According to Hersen and Barlow (1976), change in level refers to a change at the point of intervention, change in slope refers to a change in trend between phases, and drift or slope refers to the presence or absence of a linear trend in the data at any phase. An analysis which accounted for these characteristics of the data was important because the usual method of visual inspection, used predominantly in the behavior modification literature, can cause the researcher to miss significant results unless they are substantiated by actual statistical analysis. A time-series analysis evaluates changes in the level and slope of the data series, taking into account the dependency in the data. Dependency is determined through "autocorrelations" which are employed as part of the analysis to ascertain how much individual data points are influenced by past observations.

Although there are different models, the integrated moving average (IMA) model is one which is generally used to represent time-series data. In this model, each observation in a time series is represented as a weighted sum of an infinite number of previous observations. In essence, once the time-series analysis transforms the data to remove serial dependency, *t* tests for changes in level and slope can be performed (Hersen & Barlow, 1976). Computational details of the model are not discussed here because their complexity requires computer analysis. (Refer to Box and Jenkins (1970) for further details.) The IMA model was used to analyze the data in this study.

In the present study, the observer-checklist scores on each variable were the measurement units applied to the time-series model. As described earlier in this chapter, data were collected during a baseline phase, followed by the introduction of behavioral parameters for job performance (Intervention I) and then by written performance feedback (Intervention II). To strengthen the results of the study, a multiple baseline across behaviors design was used to replicate the interventions across three different variables (token data collection, client grooming, and effective use of reinforcers). Using an integrated moving average model, the group data were analyzed for change in level from one intervention phase to another and for changes in trends that led the data to drift in a different direction. The two major research questions addressed in this study were answered through the results of data obtained from this method.

Since the answer to the corollary question involved a comparison of lead group instructors to floaters, a simpler statistical analysis was used. Since serial dependency was not an issue in this question, a Mann-Whitney U test was sufficient to analyze the data. This nonparametric statistic was used because of the small sample size (Huck, Cormier, & Bounds, 1974).

For all statistical analyses, the .05 level was used as the minimum for statistical significance. All results of this study were also displayed graphically, depicting both group and individual comparisons.

CHAPTER IV
ANALYSIS OF THE DATA

Presented in this chapter is the analysis of the data relative to the two basic research questions and the corollary question which gave direction to the investigation. The two basic research questions were as follows:

1. Does defining job duties related to token data collection, client grooming, and effective use of reinforcers in specific behavioral parameters improve job performance over a baseline condition in which employees receive standard state job descriptions only?

2. Does written performance feedback further enhance job performance after job duties are defined in specific behavioral parameters?

The corollary question was as follows: Under the same experimental conditions (e.g., defining job duties in specific behavioral parameters, and providing written performance feedback), do lead group instructors (staff members consistently working with the same clients) and floaters (staff members working with different clients) perform differently?

Accordingly, the present chapter is divided into three major sections. Each section focuses on one of the aforementioned questions and presents the respective research findings.

Effects of Defined Behavioral Parameters (Intervention I)

As a group, the employees improved their performance over baseline on all three dependent variables when given a precise, behavioral definition of their job expectations. Figure 1 depicts the mean checklist scores for the group for each observation during the baseline phase and Intervention I for token data collection, client grooming, and effective use of reinforcers.

Due to the variation in scores across the observations in the baseline phase and Intervention I, the mean scores of the group for each variable more clearly illustrate the improvement made. The mean for token data collection increased from 5.73 for the baseline phase to 6.53 for Intervention I, while the means for client grooming and effective use of reinforcers increased from 15.74 to 17.31 and 2.36 to 3.64 respectively.

During the baseline phase, it became apparent that employee performance varied drastically between the classroom setting and a non-classroom setting (e.g., the recreation room) for the dependent variable of effective use of reinforcers. Since this difference was affecting the stability of the overall baseline measure, the two settings were analyzed independently. Intervention I was introduced when stable baselines for the separate settings were obtained. Figure 2 shows a multi-element graph depicting the group mean checklist scores for effective use of reinforcers in a classroom setting and in a non-classroom setting during the baseline phase and Intervention I.

Figure 3 illustrates the individual performance, represented as mean scores on a bar graph, of all six employees during baseline and

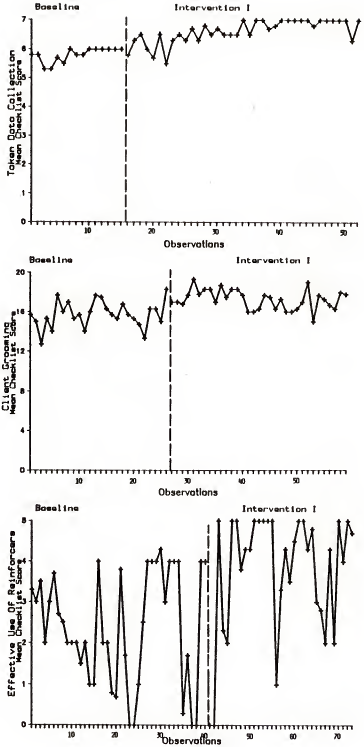

Figure 1. Mean Scores for the Employee Group on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase and Intervention I.

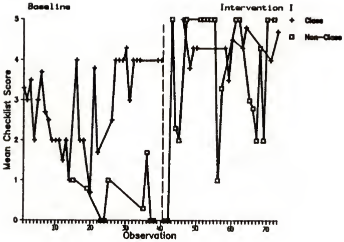

Figure 2. Mean Scores for the Employee Group on the Effective Use of Reinforcers Checklist for Each Observation in a Classroom Setting and in a Non-classroom Setting During the Baseline Phase and Intervention I.

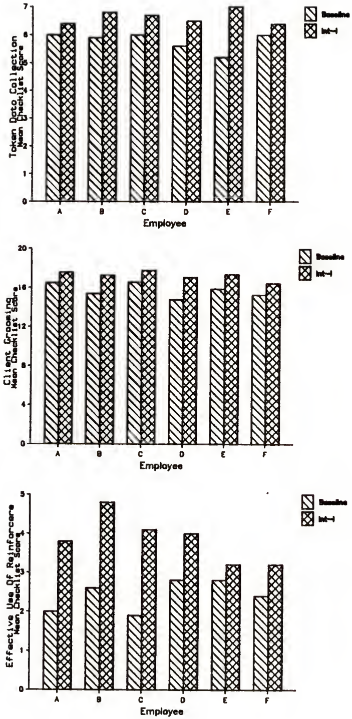

Figure 3. Mean Scores for Each Employee on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for the Observations During the Baseline Phase and Intervention I.

Intervention I for each dependent variable. All employees improved their performance on each of the three dependent variables, but individual performance varied across each. In general, performance on token data collection was the most stable of the three measures for all employees.

Using the Box and Jenkins (1970) model, a time-series analysis was performed before the _t_ tests to determine if there was a significant and immediate change in level from one phase to another and if there was a change in trend which caused the data to drift in a particular direction from one phase to another. Table 1 presents the results of the _t_ tests performed for each dependent variable after the time-series analysis, comparing the baseline phase performance with Intervention I performance. The results of the analysis confirmed the interpretations made from a visual inspection of the data. There were significant changes (p. < .01) for each dependent variable between the baseline phase and Intervention I.

In summary, defining job duties related to token data collection, client grooming, and effective use of reinforcers in specific behavioral parameters significantly improved job performance over a baseline condition in which employees received standard state job descriptions only. The added effect of written feedback (Intervention II) is reported in the next section.

Effects of Defined Behavioral Parameters Plus Written Feedback (Intervention II)

As has been noted, the purpose of the second experimental part of the study was to assess the added effect of performance feedback in the

Table 1

Baseline Phase and Intervention I Comparisons for Employee Group on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists

Variable	Phase	Mean	Standard Deviation	*t* value	df	Two - tail Probability
Token Data Collection	Baseline	5.73	.166	-10.70	45	.000
	Intervention I	6.53	.365			
Client Grooming	Baseline	15.74	.547	-10.68	50	.000
	Intervention I	17.31	.544			
Effective Use of Reinforcers	Baseline	2.36	.827	-6.23	66	.000
	Intervention I	3.64	.893			

form of receiving the observation checklist score for a particular dependent variable and having that score publicly displayed (Intervention II). The group performance during Intervention II, as well as for the baseline phase and Intervention I, for all three dependent variables is shown in Figure 4. Performance on token data collection remained high when feedback was introduced. Since the average score was near the checklist maximum near the end of Intervention I, there was virtually no room for improvement. A more obvious increase was seen, however, for the other two dependent variables of client grooming and effective use of reinforcers.

The mean scores for individual employee performance across all experimental phases (baseline, Intervention I, and Intervention II) for all three dependent variables are displayed in Figure 5. The performance for all employees during the feedback phase improved and remained more stable than during Intervention I (behavioral parameters). The individual employee performance patterns are more apparent in Figures 6, 7, 8, 9, 10, and 11, which show the individual checklist scores for each employee across all three experimental phases for each dependent variable.

Once again, $\underline{t}$ tests were performed following a time-series analysis of the data for Intervention I and II. Table 2 shows the results of the $\underline{t}$ tests. Significant ($p. < .01$) improvement between Intervention I and Intervention II occurred for all three dependent variables.

In summary, written performance feedback further enhanced job performance after job duties were defined in specific behavioral parameters. The performance of lead group instructors and floaters is compared in the next section.

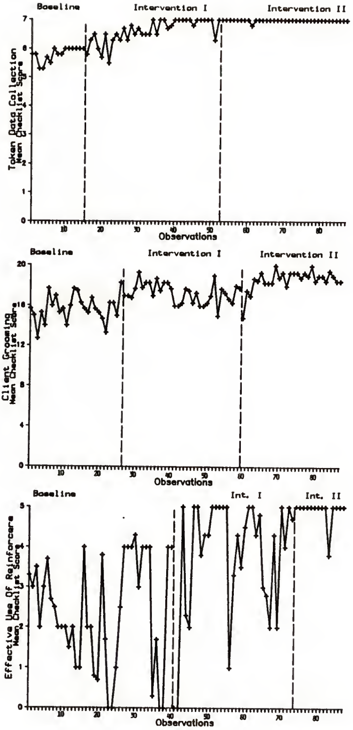

Figure 4. Mean Scores for the Employee Group on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase, Intervention I, and Intervention II.

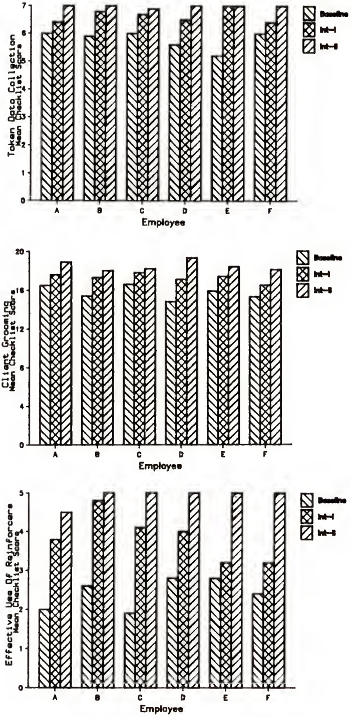

Figure 5. Mean Scores for Each Employee on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for the Observations During the Baseline Phase, Intervention I, and Intervention II.

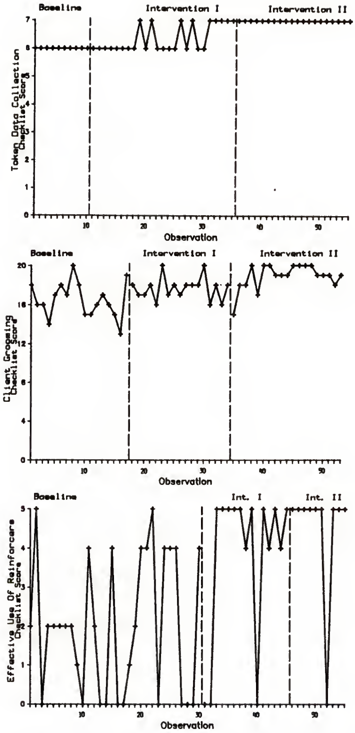

Figure 6. Employee A Scores on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase, Intervention I, and Intervention II.

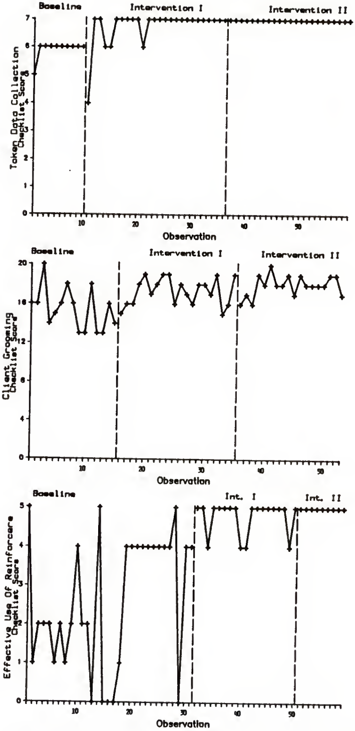

Figure 7. Employee B Scores on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase, Intervention I, and Intervention II.

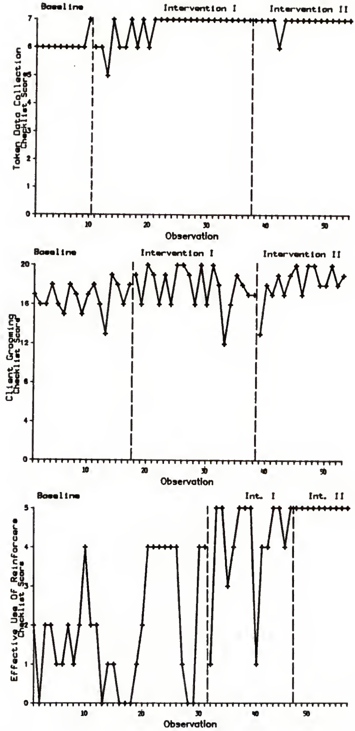

Figure 8. Employee C Scores on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase, Intervention I, and Intervention II.

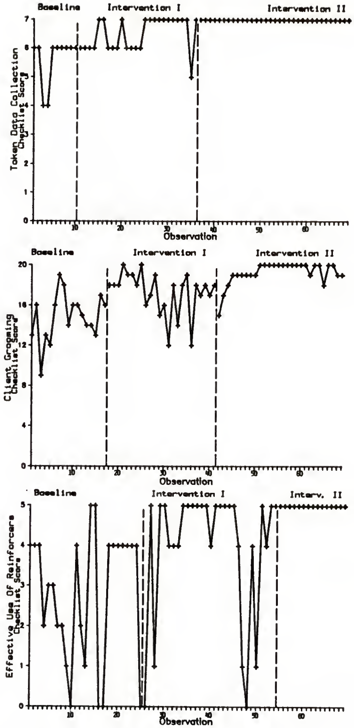

Figure 9. Employee D Scores on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase, Intervention I, and Intervention II.

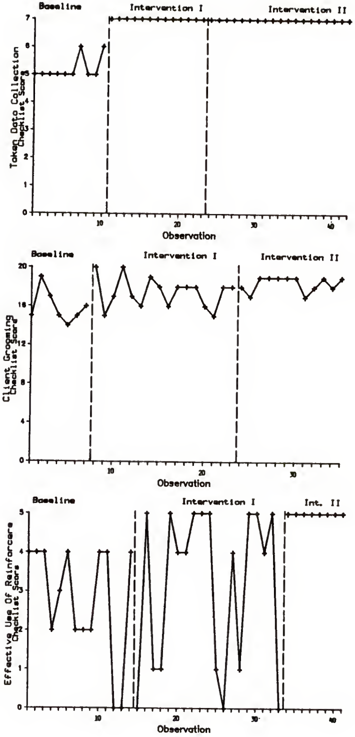

Figure 10. Employee E Scores on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase, Intervention I, and Intervention II.

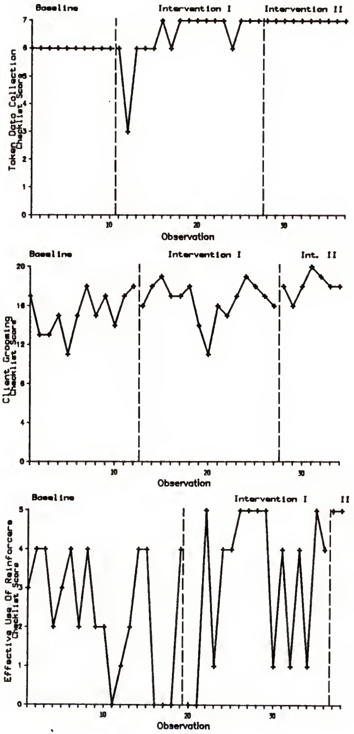

Figure 11. Employee F Scores on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for Each Observation During the Baseline Phase, Intervention I, and Intervention II.

Table 2

Intervention I and Intervention II Comparisons for Employee Group on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists

Variable	Phase	Mean	Standard Deviation	*t* value	df	Two - tail Probability
Token Data Collection	Intervention I	6.53	.365	-7.40	37	.000
	Intervention II	6.98	.036			
Client Grooming	Intervention I	17.31	.544	-7.65	48	.000
	Intervention II	18.66	.802			
Effective Use of Reinforcers	Intervention I	3.64	.893	-7.13	37	.000
	Intervention II	4.80	.183			

Comparison of the Performance of Lead Group Instructors and Floaters

Four of the employees (coded as A, B, C, and D) who participated in the study were lead group instructors while the remaining two employees (E and F) were floaters. The performance of the individual employees was depicted in Figures 6, 7, 8, 9, 10, and 11. The group mean scores for lead group instructors is compared to that of floaters in Figure 12. No obvious differences can be seen as a result of a visual inspection of the individual employee data or the group data.

To further analyze this data, a Mann-Whitney U test was performed. The results displayed in Table 3 show that there was no significant difference ($p. < .05$) in the performance of the two groups, with the exception of Intervention I for the dependent variable of effective use of reinforcers. For a Mann-Whitney U Value to be significant where $n = 2$ and $n = 4$, both members of n must be ranked either 1 and 2 or 5 and 6. Since nine Mann-Whitney Us were calculated and this ranking occurred only in the dependent variable of effective use of reinforcers and only for Intervention I, this result must be viewed with caution and may be artificial.

In summary, the overall performance of employees assigned as lead group instructors was not significantly different from that of employees assigned as floaters. The next chapter presents a summary of the study, conclusions, discussion, and suggestions for future study.

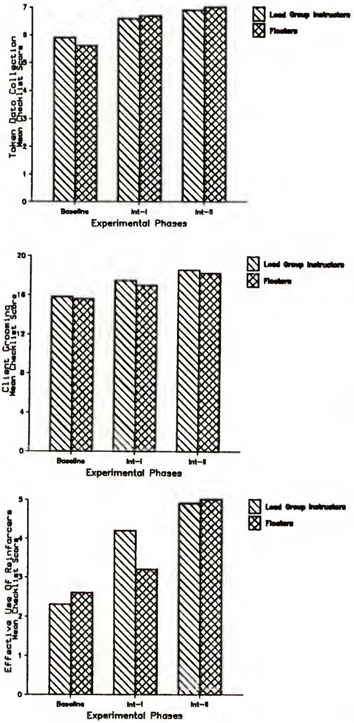

Figure 12. Mean Scores for Lead Group Instructor Group and Floater Group on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for the Baseline Phase, Intervention I, and Intervention II.

Table 3

Mann-Whitney U Rank Sums for Lead Group Instructors and Floaters on the Token Data Collection, Client Grooming, and Effective Use of Reinforcers Checklists for the Baseline Phase, Intervention I, and Intervention II

Variable	Assignment	Rank Sum For Experimental Phase		
		B	I	II
Token Data Collection	Lead Group Instructors	15	13	13
	Floaters	6	8	8
Client Grooming	Lead Group Instructors	16	16	15
	Floaters	6	5	6
Effective Use Reinforcers	Lead Group Instructors	12.5	18	13
	Floaters	8	3*	8

Note: B = baseline phase, I = Intervention I, II = Intervention II.
* p. .05

CHAPTER V
SUMMARY, CONCLUSIONS, DISCUSSION, AND SUGGESTIONS FOR FUTURE STUDY

Summary

The purpose of this study was to investigate the effect of two organizational behavior management procedures upon the job performance of mental retardation facility employees. Two basic research questions were answered:

1. Does defining job duties related to token data collection, client grooming, and effective use of reinforcers in specific behavioral parameters improve job performance over a baseline condition in which employees receive standard state job descriptions only?

2. Does written performance feedback further enhance job performance after job duties are defined in specific behavioral parameters?

Additionally, a corollary question was answered: Under the same experimental conditions (e.g., defining job duties in specific behavioral parameters, and providing written performance feedback), do lead group instructors (staff members consistently working with the same clients) and floaters (staff members working with different clients) perform differently?

Using a multiple baseline design across three dependent variables (token data collection, client grooming, and effective use of reinforcers), the job performance of six mental retardation facility employees was compared after receiving standard state job descriptions only (baseline phase), after receiving specific behavioral definitions of job duties (Intervention I), and after receiving written feedback in the form of public posting of checklist scores. Performance for all six employees improved under both Intervention I and II. Improvement was significant ($p. < .01$) for the group in both experimental phases of the study. A significant difference ($p. < .05$) was not found, between the overall performance of lead group instructors and floaters.

Conclusions

Although this study was plagued by many of the problems that often impact on studies conducted in applied settings (e.g., changes in the study participants due to staff scheduling, injuries, or other forms of attrition; other intervening variables which may affect the motivational level of the staff such as disciplinary action or environmental conditions), the results were consistent enough across all study participants and across all three dependent variables to draw some general conclusions. These conclusions are presented as they relate to the questions asked in the study.

In regard to the first basic research question, it appears that significant increases in employee performance can be obtained by developing job performance standards which include a combination of (a) precise descriptions of job duties, (b) assessment of job duties by checklists, (c) training in performing those duties properly, and (d) criteria relating individual performance to a formal performance appraisal process. Relative to the second basic research question, it can be concluded that feedback in the form of written checklist scores and public posting of those scores improves performance beyond feedback in the form of verbal praise and constructive criticism. With regard to the corollary research question, there were no statistically significant differences between floaters and lead group instructors as a whole. All employees improved their performance in all three dependent variables (token data collection, client grooming, and effective use of reinforcers) in both Intervention I and Intervention II.

Based on observations during the experiment and on conversations with the employee subjects, additional conclusions seem warranted. First, it is more effective to use observers who have positions of power over the participants. Even though trained external observers may be beneficial in terms of greater objectivity and the prevention of additional observation workloads for supervisors, these factors do not appear to outweigh the effect on performance exerted by persons in control over valued outcomes. This conclusion was substantiated in the present study by the differences in employee performance levels exhibited in the presence of the behavioral services coordinator (direct line authority) and the unit nurse (no direct line authority)

Second, employees tend to perform better on those jobs over which they feel they have control. This conclusion was exemplified in the ultimately higher and more stable performance levels exhibited for token data collection and effective use of reinforcers, the two job duties over which the employees had total control. In developing performance standards and in appraising employee performance, administrators should emphasize those duties which can be controlled by the employee. If certain duties are inevitably influenced by other persons or factors, attempts should be made to minimize those factors or to set up accountability systems which allow for better tracking of the individual employee's performance.

Third, it can be concluded that job duties which do not leave permanent products are much more difficult to monitor, and they result in less consistent performance than job duties which leave permanent products. This conclusion is based on a comparison of the data relative to token data collection and client grooming with that of effective use of reinforcers. The latter variable was particularly susceptible to environmental influences (e.g., location in classroom or non-classroom setting, whether or not the observer was identified as such).

A final conclusion with regard to the study as a whole is that organizational behavior management (OBM) can successfully be used to extend the basic theories of Maslow, McGregor, and Herzberg. Application of the behavioral principles of OBM allows managers to predict and control staff performances to a greater degree.

Discussion

Most studies which have systematically investigated the effect of specifying job duties have not demonstrated as significant an effect as was shown in this study (Anderson, Crowell, Sponsel, Clarke, & Brence, 1982; Brown, Malott, Dillon, & Keeps, 1980; Komaki, Heinzmann, & Lawson, 1980; Quilitch, 1975). In comparing the results of the present study with those of other studies, a close analysis of the procedures reveals some distinct differences. In the present study, defining job duties by specific behavioral parameters included several components. The job performance standards contained precise descriptions of the expected behaviors, presented in terms which converted to simple and relatively objective checklists. In addition, the job performance standards included specific criteria for performance assessment, which the employees knew would be used to determine their annual performance appraisal scores. In a sense, this component was a form of goal-setting. Furthermore, it gave the employees a way of assessing their own performance on an ongoing basis.

In a study done by Komaki et al. (1980), "training alone" was compared with "training and feedback." Training consisted of giving employees definitions of specific safety items or procedures, and then having them practice discriminating between safe and unsafe conditions. Unlike the present study, Komaki et al. did not give the employees copies of checklists which would be used to evaluate their performance and they did not specify performance criteria during this phase of the study. During "Training and Feedback I" a group goal was set, but this goal had no relationship to formal individual performance appraisal. An advantage of the study by Komaki et al. over the present study, however, was the use of a reversal design which demonstrated the effect of eliminating the use of feedback and returning to "training only."

In his study Quilitch (1975) compared the use of an administrative memo, an activities workshop, and scheduling and feedback. Memos and workshops were shown to be ineffective procedures, while staff scheduling and performance feedback produced significant positive changes in staff performance. A major difference between Quilitch's study and the present study was the manner in which staff scheduling was used. In Quilitch's study, it was combined with feedback. In the present study, it was included in the job performance standards which were a part of Intervention I (defining job duties in specific behavioral parameters). Like Komaki et al. (1980), Quilitch did not use checklists and did not relate individual staff performance to formal individual performance appraisal.

Another study which assessed the effect of training versus feedback was done by Brown, Mallot, Dillon, and Keeps (1980). Training in that study consisted of instructing salespersons in specific customer service behaviors. Checklists, written job performance standards, and specific criteria relating to formal individual performance appraisal were not used.

In the study by Anderson et al. (1982), checklists were used but the checklist scores did not have any relationship to formal individual performance appraisal. Employees could even opt whether or not they wanted to participate. Also, performance feedback was instituted at the same time as the checklists. The effect of knowledge of job duties alone was assessed through a withdrawal period rather than through a preliminary effect prior to the implementation of feedback.

When asked in conversations following the present study why their performance improved after being given precise definitions of expected job performance for token data collection, client grooming, and effective use of reinforcers, the study participants' answers included, "I knew then exactly what was expected of me," "it clarified my job duties," "it gave me a personal goal for performance," and "it ensured consistency in the directives being given by different supervisors." All of the study participants were positive in their reaction to the intervention procedure, and they expressed a desire to have their other job duties presented in the same manner.

To summarize, in the present study it was found that employees improved their job performance when their job duties were defined in specific behavioral parameters. The results obtained were inconsistent with several other studies, but the inconsistency may be attributed to some distinct differences in methodology and design. For example, scheduling and goal setting were incorporated in the present study as part of job performance standards, whereas these were included in the feedback contingency in other studies.

The results of the current study with regard to performance feedback were consistent with previous findings (Anderson, Crowell, Sponsel, Clarke, & Brence, 1982; Ford, 1984; Komaki, Heinzmann, & Lawson, 1980; Quilitch, 1975; Realon, Lewallen, & Wheeler, 1983; Shook, Johnson, & Uhlman, 1978; Wikoff, Anderson, & Crowell, 1982). A combination of feedback procedures consisting of verbal feedback which incorporated praise and/or constructive criticism, written feedback in the form of a checklist score and corresponding graphic representation of that score, and public posting in the form of an individual graph was used in the present study.

Of the studies cited above, those done by Anderson et al. (1982), Komaki et al. (1980), Quilitch (1975), Shook et al. (1978), and Wikoff et al. (1982) utilized public posting. In all cases, public posting was found to be effective. In the present study, it was confirmed that feedback in the form of public posting improves employee job performance.

As suggested by Zajonc (1962), the employees were given feedback on both their own performance and that of other employees. The effectiveness of each method was not investigated individually in the present study. The added incentive provided by being able to compare ones own performance with that of the other group members was mentioned, however, by the study participants in conversations following the present study. When asked which aspect of public posting influenced them the most, 20% of the participants responded that seeing their own current performance compared to previous performance was the most effective, while 40% said it was seeing their performance compared to other staff members, and 40% said both were equally effective. When asked why their performance improved during the public posting phase of the study, employee responses included, "I could see exactly how well I was doing," "the graph gave me a performance goal," "seeing my performance compared to my coworkers motivated me to improve and show that I was the best."

While some studies (Brown, Willis, & Reid, 1981; Realon, Lewallen, & Wheeler, 1983) have investigated the differential effects of verbal feedback and feedback plus approval, this was not done in the present study. Instead, the findings of those previous studies were used as guidelines, and verbal praise was incorporated as part of the feedback procedure in the present study. In fact, both constructive criticism and verbal praise were used as part of the baseline conditions for the present study. The only added interventions were therefore the use of checklist scores and the public posting of those scores.

Following the completion of the present study, one employee expressed that the feedback phase of the study had increased the interaction between employee and supervisor for the dependent variables of token data collection and effective use of reinforcers. The employee responded favorably to the opportunity for more interaction and to the ongoing inservice training that occurred as part of constructive criticism (telling employees how to correct imperfect checklist scores).

The person providing the feedback can also have an impact on the performance of the employee (Halperin, Snyder, Shenkel, & Houston, 1976; Ilgen, Fisher, & Taylor, 1979). In the present study, feedback was provided by the unit nurse and the behavioral services coordinator. The unit nurse was considered to be a member of the unit's management team, but she did not have line authority over the participants in the study. The behavioral services coordinator had line authority and functioned as the assistant director of the unit. He therefore had more control over valued outcomes than did the unit nurse, and according to Ilgen et al. (1979) employees should have been more receptive to his feedback. This contention was substantiated in an unplanned intervention. During one particular week during the study, the unit nurse collected the data on token data collection and effective use of reinforcers while the behavioral services coordinator was away at a conference. In reviewing the individual employee graphs for those observations, a decrease in scores is evident for some employees during that time. The unit nurse remarked that it was as if the employees did not care what scores she gave them. In general, less improvement was shown in the data collected by the unit nurse (client grooming) than in the data collected by the behavioral services coordinator (token data collection and effective use of reinforcers); however, when asked after the study survey if it made any difference who collected the data, 80% of the employees responded that it did not. The subjective responses obviously did not match the actual behaviors of the employees as described above.

There may, however, have been another variable accounting for some of the difference. The employees had complete control over their performance on token data collection and effective use of reinforcers, whereas they often blamed low scores on client grooming on other persons or on factors beyond their control such as broken razors, lack of proper fitting or clean clothing, and failure of the night shift to lay out clothing that morning. During Interventions I and II, employee excuses were patiently listened to by the unit nurse, but she repeatedly explained that she had to rate the client strictly on his/her appearance at the time of the observation. Although employee performance improved during Intervention I, the data for client grooming showed much more variability than did the data for token data collection. During Intervention II, however, the scores increased further and presented a more stable pattern. While the change may be attributed to the effect of the feedback contingencies alone, it is also possible that the various complaints and excuses given by the employees to account for lowered performance were simply extinguished. The effect of the extinction procedure could have caused them to try harder to improve their scores, since excuses for lowered performance were not accepted and did not alter the scores.

Another related factor concerning observation procedures is whether or not the performance of the job duty results in a "permanent product." Permanent products are those enduring changes made in the environment by a specific behavior. Some behaviors yield permanent products whereas others do not. For example, a behavior such as "making a bed" would result in a lasting, physical change in the environment whereas "verbally instructing a client to make a bed" would last no longer than it took to say the words. In the present study, job duties of token data collection and client grooming produced permanent products, permitting the effects of the employee's performance to be assessed after the fact. It was therefore not necessary to see a staff member record token data or dress a client to determine whether or not the behavior was performed. These permanent products could be observed anytime during the day, and the employee did not even have to be present for the assessment to occur. The effective use of reinforcers, however, had to be observed at the time it occurred since it did not leave a permanent product. In observing the employees, the effect this difference had on their performance was that the observer served as a discriminative stimulus for the behavior to occur. Through the use of independent and unidentified observers (the author and the unit social worker), it was found that employees immediately started reinforcing clients when the identified observer entered the room. The verbal reinforcement decreased markedly or ceased to occur when the observer was not present. This phenomenon was greatest during Intervention II when it became apparent that the observer was recording and posting data.

Frequency of feedback was not investigated as part of the present study. The study design used was such that employees were monitored and given feedback on the average of twice a week, depending upon their rotating work schedules and other factors which influenced observation (e.g., disruptions in client activities, employee leave time, insufficient unit coverage). Although all study participants stated that they liked the feedback system and wanted it to continue, one employee found the frequent monitoring to be mildly aversive. He suggested that less frequent monitoring might be used as a reinforcer for those employees who consistently demonstrated good performance as evidenced through the checklist scores. For example, if an employee received maximum scores on the checklists for 10 consecutive observations, that employee could then be monitored biweekly rather than weekly. The system would be self-correcting in that the monitoring schedule could be increased again if the employee's performance began to drop as a result of the reduced frequency of monitoring.

In comparing lead group instructors and floaters, no significant group difference was found through visual inspection or formal analysis of the data. The one exception for effective use of reinforcers during Intervention I was probably artificial, as it was inconsistent with the other eight comparisons. When asked after the study whether they preferred to be lead group instructors or floaters, 80% of the employees (4 out of 5) said they preferred to be lead group instructors. The reasons they gave for this choice included statements such as, "you get to know your clients better and they perform better for you," "it creates more of a family atmosphere," "you can see client progress better," "you can keep better track of supplies and equipment by working in the same classroom with the same clients," and "you can be more consistent in your client programming." The one employee who preferred to be a floater said that he preferred the variety afforded by the change in clients.

Suggestions For Future Study

Further study is needed regarding the format of performance standards (i.e., the specificity with which they are written, their conversion to checklist rating systems, the inclusion of performance criteria). Additional study is needed to determine the effect of joint development of job performance standards by the employee and supervisor versus that of the development and assignment of performance standards by the supervisor alone, and the effect of individual performance criteria as opposed to group performance criteria.

Further study is needed to determine which positions in an organization might have the most effect on employee performance when functioning in a monitoring or observer capacity. For example, it may be found that the next higher level supervisor exerts more influence on performance than the immediate supervisor. If this proved to be the case, then monitoring duties might be added to this person's job duties, or attempts could be made to isolate and add to the immediate supervisor's control those outcomes which seem to be associated with the "power" of the next higher level supervisor.

Research is also needed to determine the most effective schedules of feedback. Schedules need to provide feedback frequently enough to reinforce and maintain employee performance, but still conform to a schedule which is not intrusive to the employee or unwieldy to the supervisor. As suggested previously, the schedule of feedback could be used as a reinforcer, with a decrease in the frequency of feedback used to reinforce those employees who demonstrated consistently good performance at a higher rate of feedback.

Ways to ensure consistent performance on those job duties which do not leave permanent products also need to be investigated. This could entail environmental manipulation of discriminative stimuli, or perhaps the use of self-monitoring systems for employees.

The use of personal posting and maintenance of score records could be investigated and contrasted with the use of public posting. While this approach would lose the added effect of peer pressure inherent in public posting, it would be easier to do and would be more personalized. It could also give the individual employee a greater sense of personal control over the tracking of his/her performance.

The results of the current study could have been strengthened through the use of a reversal design. Once performance had stabilized for Intervention II, the use of feedback on the checklist scores and public posting could have been discontinued, thus reverting to the contingencies in Intervention I. A reversal design of this nature could have further assessed the effect of performance feedback, and could also have determined whether or not the effect produced in Intervention I maintained.

Due to the small number of participants in this study, the findings concerning lead group instructors versus floaters must be viewed very cautiously. This aspect of the study should be repeated with a larger number of participants.

As Quilitch (1975) pointed out, administrators should not assume that improvement in staff behaviors will automatically result in improvement in client behaviors. Future study should incorporate a simultaneous data collection component to determine how much, if any, improvement in client behavior occurs as a result of improvement in staff performance.

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APPENDIX A

JOB PERFORMANCE STANDARD FOR ACCURATELY RECORDING TOKEN DATA

JOB PERFORMANCE STANDARD

Specific Job Duty: Accurately Record Token Data

Assigned To: Position Title: UTR Specialist

Performance Expectations:

1. Token points are to be awarded to clients and recorded on the token point record at the times indicated by the "check time."
2. The staff member awarding and recording the token points is to initial the points given either to the side or the bottom of the section of the token card being scored.
3. Token fines are to be recorded on the token fine sheet when they occur, and are to be initialled by the staff member giving them.
4. Token fines for a particular time interval are to be totalled and transferred to the token point record at the next scheduled token exchange period following the occurrence of the inappropriate behavior. A line is to be drawn through the individual fines to indicate that they have been transferred. The "total fined" is to be initialled by the staff member recording the points.
5. Token expenditures are to be recorded at token exchange times and canteen times, and are to be initialled by the staff member recording them.
6. Token expenditures for a particular token exchange are to be totalled and transferred to the token point record at token exchange time. A line is to be drawn through the individual expenditures to indicate that they have been transferred. The "total spent" at token exchange is to be initialled by the staff member recording the points.
7. Token card totals are to reflect correct addition and subtraction.

Data Collection/Verification Procedure:

Token point record cards, token fine sheets, and token expenditure sheets will be checked at random times throughout the day and week by a behavioral staff member. The information recorded on the token point record cards, the token fine sheets, and the token expenditure sheets will serve as data. These data sheets will be cross-referenced to verify accuracy on the token point record cards. Staff members will be responsible for the token data sheets of those clients assigned to them at the time of the spotcheck. Spotcheck scores will be recorded on the "data sheet for quantitative measure of accurate token data."

Evaluation Criteria:

Exceeds: An overall average of 7 items correct on all spotchecks done for the evaluation period.

Achieves: An overall average of 6 items correct on all spotchecks done for the evaluation period.

Below: An overall average of 5 or less items correct on all spotchecks done for the evaluation period.

APPENDIX B

JOB PERFORMANCE STANDARD FOR PROPER GROOMING OF CLIENTS

JOB PERFORMANCE STANDARD

Specific Job Duty: Insure Proper Grooming of Clients

Assigned To: Position Title: UTR Specialist

Performance Expectations:

Each client assigned to a specific staff member is expected to be well-groomed at all times. Those items which constitute well-groomed are listed on the attached "data sheet for client grooming." Clients are to be instructed in performing grooming tasks themselves, but physically assisted by staff as necessary to insure proper grooming.

Data Collection/Verification Procedure:

Clients will be spotchecked at random times by supervisory/administrative staff, and their appearance scored on the data sheet for client grooming. The actual appearance of the client at the time of assessment will be the basis for the score. Clients will not be checked during times (e.g., meals) when their appearance can be expected to be less than acceptable.

Evaluation Criteria:

Exceeds:	An overall average of 20 points scored for all clients assessed during the evaluation period.
Achieves:	An overall average of 18 -19 points scored for all clients assessed during the evaluation period.
Below:	An overall average of less than 18 points for all clients assessed during the evaluation period.

APPENDIX C

JOB PERFORMANCE STANDARD FOR COMPETENTLY USING BEHAVIORAL PROCEDURES

JOB PERFORMANCE STANDARD

Specific Job Duty: Competently Use Behavioral Procedures

Assigned To: Position Title: UTR Specialist

Performance Expectations:

When working with clients, the staff member will demonstrate the proper use of appropriate behavioral procedures. Each procedure will be broken down into a checklist of separate behaviors (refer to individual procedure competency checklists).

Data Collection/Verification Procedure:

Spotchecks on different behavioral procedures will be done at random times by behavioral staff. The observed performance of the staff member being assessed will be recorded on a competency checklist. Scores will be converted to percentages for comparison purposes.

Evaluation Criteria:

Exceeds: An overall average score of 90 - 100% on all competency spotchecks done during the evaluation period.

Achieves: An overall average of 80 - 89% on all competency spotchecks done during the evaluation period.

Below: An overall average of less than 80% on all spotchecks done during the evaluation period.

APPENDIX D

CHECKLISTS FOR TOKEN DATA COLLECTION, CLIENT GROOMING, AND EFFECTIVE USE OF REINFORCERS

DATA SHEET FOR QUANTITATIVE MEASURE OF ACCURATE TOKEN DATA

Staff Member:

Client:

Expected Performance	Actual Performance				
Token data current with check times					
Token points are properly initialled					
Token fines are properly initialled					
Token fines are properly transferred					
Token expenditures are properly initialled					
Token expenditures are properly transferred					
Token card totals are correct					
TOTAL CHECKS					
DATE					
Observer's Initials					

L&LP Form

DATA SHEET FOR CLIENT GROOMING

Client: Date: Time:

Group: Instructor:

Item Assessed	+	-	Comments
1. Clothing fits properly			
2. Clothing matches (color and pattern)			
3. Clothing is in good repair			
4. Clothing style is appropriate			
5. Clothing is appropriate for occasion			
6. Clothing has belt or necessary accessories			
7. Clothing is clean			
8. Clothing is neat (not wrinkled, etc.)			
9. Client has on own clothes			
10. Client has on underwear			
11. Client has on socks (if necessary)			
12. Client has on appropriate shoes			
13. Client is clean (free of odor)			
14. Client's teeth are brushed			
15. Client's hair is combed			
16. Client's hair is clean			
17. Client has on deodorant			
18. Client's fingernails are clean/trimmed			
19. Client's toenails are clean/trimmed			
20. Client is properly shaved (males) Client has on cosmetics (females)			
Totals			Data Collected By:
Percentages			

L&LP Form

COMPETENCY CHECKLIST
FOR EFFECTIVE USE
OF REINFORCERS

Person Assessed: Date:

Behaviors Assessed	Score	Comments
1. Explained contingencies to client		
2. Selected appropriate reinforcers		
3. Reinforced appropriate behavior		
4. Used descriptive praise		
5. Reinforced within the proper time frame		
TOTAL SCORE		

Percentage Correct:

Evaluator: Time of observation:

L&LP -21, Jan 84

BIOGRAPHICAL SKETCH

Sharon Kay Titus was born on May 28, 1948, in Sebastian, Florida. She lived there until 1966, when she entered Florida State University at Tallahassee, Florida. Upon completing a bachelor's degree in psychology in 1970, Sharon moved to Orlando, Florida, where she taught a junior high school special education class until returning to Florida State University in 1971 to earn her master's degree in habilitative sciences.

Between the years of 1972 when she received her master's degree and 1981 when she entered the University of Florida/Florida International University cooperative Doctor of Education program, Sharon served as the administrator of several specialized programs for mentally retarded persons. From 1973 to 1976, she held the position of Resident Life Program Supervisor at Orlando Sunland in Orlando, Florida, where she designed and implemented the ward habilitative and behavioral programs for 700 retarded, physically handicapped children and adults. In 1976, Sharon was promoted to the position of Programs and Services Director at Miami Sunland in Miami, Florida. Between the years of 1976 and 1979, she developed that institution's behavior therapy department, restructured its educational services, and opened the county's first program for retarded offenders. Sharon left her position as an institutional administrator to establish the Skills Training, Analysis, and Research Consultants Corporation, a consulting company providing services in staff management, education of specialized populations, and applied behavior analysis. From 1981 to 1983, Sharon extended her consulting services to the Dade Association of Retarded Citizens to include the administration of its group home for retarded juvenile delinquents. As the administrator of this program, she wrote its curriculum, developed its policies and procedures, and established it as a statewide model program. In 1983, Sharon accepted the position as Director of The Living and Learning Place, south Florida's first residential treatment program for dual-diagnosis (mentally retarded and mentally ill) adults. At present, Sharon continues to direct this program and to serve as the President of STAR Consultants, Inc., wherein she functions as a private behavior therapist and staff trainer for the public school system and for state and county programs for developmentally disabled and emotionally disturbed children and adults.

Sharon is the daughter of Betty Ellis and has five younger brothers and sisters. She is the surrogate mother of a toy poodle, a Shih-tzu, a red persian cat, a silver persian cat, and a sun conure.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Michael Y. Nunnery

Michael Y. Nunnery, Chairman
Professor of Educational
Leadership

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

Charles Forgnone

Charles J. Forgnone
Professor of Special Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

James W. Longstreth

James W. Longstreth
Associate Professor of
Educational Leadership

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Education.

May, 1987

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